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ABSTRACT

This is the final technical report (in three parts) of a 15-month long project to study the costs and value of library functions at five major research libraries. Twenty-one services or service aspects were studied, and numerous measures of the importance or benefit of the service to the users were made. These measures were studied together to lay a foundation for the development of an economically valid scale for assessing the impact of library services. More than 500 interviews were transcribed, and an empirical taxonomy was developed for classifying the contexts and the value to users of library services. Finally, the principles of data envelopment analysis have been adapted to this situation and illustrated using representative measures of library impact. This study has established not only the characteristics of the numerous services studied, but also the fact that a single uniform instrument can be applied to study many diverse services at many libraries. Instruments and a manual for their use in replicating these studies were also developed. The long-term goal of this study is the development of a general taxonomy and metrology for library benefits, toward which substantial progress has been made, yet more remains to be done. Specific conceptual problems were identified that arise when the goal is to extract economically useful information from interview data, and points the way to further methods that will resolve these problems. Overall, it was discovered that users of library services: (1) value these services very highly; (2) have very little experience purchasing information services; (3) value the library more highly than other university-supplied services; (4) do not assign dollar estimates to the value of services which are commensurate with the cost of the services; and (5) can articulate, with proper questioning, the context and purposes which bring them to use library services. Part 1 "Models, Methods, Results," summarizes the project's findings. Part 2, "Detailed History of Project Management and Processes," provides a detailed history of project management and processes, including preliminary studies, selection of interviewers and research instruments, and delayed impact assessment. Part 3 is "A Manual for Replication of These Studies." A fourth part, appendices A-H, include: instruments and SPSS codes; open ended coding; open ended coding results tables; cost data collection forms; interviewer training manual; miscellaneous forms; focus group moderator guide; and questionnaire instructions. (MAS)

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Studying The Cost and Value of Library Services

Final Report

by

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Technical Report APLAB/94-3/1,2,3,4. (Rev Mar 95)

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Studying The Cost and Value of Library Services

Final Technical Report

Part 1: Models, Methods, Results

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Technical Report APLAB/94-3/1. (Rev Mar 95)

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EXECUTIVE SUMMARY

This is the final technical report of a 15-month long project to study the costs and value of library functions at five major research libraries. A total of 21 services or service aspects were studied. Numerous measures of the importance or benefit of the service to the users were made. These measures were studied together to lay a foundation for the development of an economically valid scale for assessing the impact of library services. Further, more than 500 interviews were transcribed, and through detailed content analysis an Empirical Taxonomy was developed for classifying the contexts and the value to users of library services. Cost estimates, using functional cost analysis, were developed for all the services. A Derived Taxonomy of Value in Using Library Service has been developed from the Empirical Taxonomy to provide a foundation for further research in this area. Finally, the principles of Data Envelopment Analysis have been adapted to this situation, and illustrated using representative measures of library impact.

This study has definitely established not only the characteristics of the numerous services studied, but also the fact that a single uniform instrument can be applied to study many diverse services at many libraries. Additional goals met include the development of instruments and a manual for their use in replicating this study. The long-term goal of this research is the development of a general taxonomy and metrology for library benefits. Substantial progress has been made, and yet more remains to be done. The study has identified specific conceptual problems that arise when the goal is to extract economically useful information from interview data, and points the way to further methods that will resolve these problems.

Overall, we have found that users of services at research libraries (1) value these services very highly, (2) have very little experience purchasing information services, (3) value the library more highly than other university-supplied services, (4) do not assign dollar estimates to the value of services which are commensurate with the cost of the services, and (5) can articulate, with proper questioning, the context and purposes which bring them to use library services.

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1 COST AND VALUE OF SERVICES IN RESEARCH LIBRARIES: PROJECT OVERVIEW

1.1 Problem, Objectives, Organization

Research libraries and their supporting institutions are increasingly concerned about costs incurred and values received. This concern grows from difficult decisions on allocation of limited resources and the bewildering array of modern technology- based resources and services available to libraries. Libraries provide an ever increasing array of services. But the library is an internal service supported by the institution as a whole, in aid of its overall goals and objectives. Ultimately, the critical question that must be answered by institutional managers is:

"Does the sum total of value flowing from the library justify our cost in maintaining it?"

This most difficult problem leads, in turn, to many other ones. Studying the cost of university libraries raises a host of interesting methodological challenges. Adding the study of value, as perceived and/or defined by users, increases the methodological challenge many fold. These concern three aspects: the definition and determination (that is, the model and method) of the cost of library services; definition and determination of value of services to users; and finally combining in some way both cost and value, together.

The goal of this study is to address the problem of developing models and methods for studying the cost and value of library services in a way that can be pragmatically generalized and applied by libraries wishing to conduct similar studies. In other words, the goal of this study is to provide libraries and information services in general, and research libraries in particular, with methods for gathering information on the cost and value of their services; information that will aid in justification and decision making.

The objectives are to:

1. Define and apply methods for obtaining costs for several library services.
2. Derive an empirical taxonomy of values for these services based on users' assessments.
3. Provide methods for combining cost and value data.
4. Provide a detailed description and manual that will allow for replication of these types of studies.

To achieve these goals and objectives required an empirical study involving collection of a large amount of data from several libraries and a number of different services. Five libraries, 21 services, and over 500 user interviews were involved, making this among the largest, if not the largest study of cost and value of library services. The study incorporated development of appropriate models and methods for study of cost and value, extensive validation of these with data from actual services and situations, and extensive documentation of these efforts.

Accordingly, this Final Report is organized as follows:

Part 1: Models, Methods, Results.

Section 1. provides a general discussion of problems and issues and description of the approach to data collection.

Section 2. discusses development of scales and provides statistics of the samples and scales involved.

Section 3. is devoted to description and data on cost of different services.

Section 4. is on value: description of approach to study of value and presentation of the Derived Taxonomy of Value in Using Library Service, together with some statistical results.

Section 5. combines cost and value data.

Section 6. provides directions for further study and application.

Back matter, acknowledgements, a comprehensive bibliography, and title pages of other parts and appendices provide links to the remainder of this report, and to the literature.

Part 2: Detailed History of Project Management

Incorporates details on services studied; extensive statistics related to numbers in samples, interviews, and efforts to collect the data; and descriptions of development of instruments. This part describes what was actually done, the management of complex data collection, and the effort needed to get data. This material is for designers and managers of similar studies and any researchers seeking to replicate these results.

Part 3.: A Manual for Replication of these Studies.

Provides pragmatic suggestions for organization of a study of cost and value of library service, (detailed guidelines and worksheets are in Appendix D).

Appendix A. Provides the instruments used in interviews, and the mapping of variables defined for statistical manipulation into questions in questionnaires.

Appendix B. Describes development of value taxonomies. Incorporates the initial coding of data and the first Empirical Taxonomy of Value derived directly from the user responses in interviews, and later used for development of the Derived Taxonomy.

Appendix C. Gives the full statistical distribution of codes using the Empirical Taxonomy of Value, Version 1.

Appendix D. Provides description and forms for cost data collection.

Appendix E. A manual for training of interviewers. All data for determination of value were collected through interviews.

Appendix F. A variety of forms and letters used in the project, including letters used for recruiting, forms used for scheduling and record keeping.

Appendix G. This is a guide for moderators of focus groups devoted to exploration of value of library services and libraries.

Appendix H. Instructions for conducting of interviews, following questions in questionnaires. This complements and completes the defintion of the empricial taxonomy.

In all, this Final Report incorporates extensive documentation, not only about the methodology and results, but also on specific procedures, instruments and forms used. We believe that such extensive documentation will be useful to those who would like to conduct similar studies, by using, adapting revising or incorporating parts of the procedures and instruments to their own needs.

1.2 Non-Profit Setting

The critical question posed at the outset ("Does the sum total of value flowing from the library justify its cost?") is difficult enough to resolve in the corporate world, where there is at least one agreed upon overall measure of corporate progress: the net profits returned to shareholders. While this choice of a measure is subject to criticism from many directions, and is sometimes blamed for the failures of American industry to carry out long-term strategies aimed at developing market share, it does at least provide some starting point for the study of the role of libraries. The major research university, on the other hand is a quintessential example of a non-profit organization. Unlike hospitals, universities do not deal with a series of well-defined incidents or cases, which might be studied one by one to assess the impact of the library. Universities produce essentially intangible "products" such as "well educated students" and "cutting edge research". Thus, while financial soundness and fiscal responsibility are essential in the operation of a university, balancing the budget does not reflect progress towards those major goals. Even when a university broadens its goal statement to include a desire to have an impact on surrounding communities, and on the national cultural or economic profile, these enlarged goals also do not point the way to clear internal measures of progress.

1.3 Scholarly and Practical Importance

The question of value is attractive from a scholarly perspective. The issue from the scholarly perspective is "How can we reasonably define and measure the contribution of the library (whose deliverable products are themselves intangible) to the overall goals and objectives of the university as a whole, whose goals and deliverables are even less tangible?".

Aside from this scholarly interest there is a pressing practical reason to be concerned about measuring the value of the library. The library has stood as a unique service organization in the university setting. Enshrined in a major campus building, it serves as a natural community focus for scholars, a point of pride for the entire community, and its very bulk and contents have seemed in themselves to answer the question "Why do you cost so much?". All of this is being changed with the rapid development of computers and telecommunication systems which link the scholars and the students at their desks and laboratory benches to the metadocuments (catalogs, bibliographies, etc.) of the library on campus, of libraries around the world, and increasingly to the documents themselves maintained locally or elsewhere. With this in mind we have tried to include in our study examples of the "metadocumentary" services, such as enhancements to the online public access catalog, as well as services which provide access to information and to documents themselves.

As the richness of a library will increasingly be measured by the range of materials which students and scholars can reach, rather than by the physical possession of those materials, it is essential that we develop, in the present setting, measures that assess, as well as we can, the value of present library services to the institution. With such measures in hand, libraries will be prepared to move through the transition, documenting as they go, that a decrease in the number of serials titles held or the number of bound volumes on the shelves, need not represent a decrease in the library's impact on the university. In fact, the best measures of impact would show the increase in value as access to materials is made more transparent for students and scholars.

1.4 Measurement Focused on Patrons

As a university does not conceive of itself in terms of manufacturing divisions, or product lines, there is no point in the institutional framework to which to address the question "How much does the library benefit the institution?". Rather, we believe, the correct point of inquiry is the individuals who make use of the services of the library. They generally do not conceive of their use of the library in terms of impact on the institution at large. Rather they see themselves, at the moment of use, as engaged in some particular task or project whose goals are more or less in line with overall goals of the institution.

Setting aside tasks and projects that are entirely personal in nature (hobbies, personal health concerns, preparation of tax returns, etc.) we can anticipate that students will primarily see their tasks in terms of completion of course work or research, in progressing towards an approved degree to be awarded by the university. Scholars on the other hand engage in a variety of tasks broadly defined as service or administrative tasks (such as verifying the credentials of a colleague who is being considered for promotion), teaching (which involves maintaining current awareness of pedagogical developments, as well as the preparation of specific lectures, assignments, exercises, laboratory projects, and so forth) and scholarship or research.

In this situation we have decided that the most effective approach to assessing the value of the library is to focus attention on the specific task or project that brings the user to the library, and to ask questions about value, benefit and importance in the specific context of that use. As we discuss at length in the body of the report, it is not an easy matter to ensure that respondents maintain this focus even during a brief ten-minute interview.

1.5 Ideal Economic Perspective

From the economic point of view one would build up the impact of the library on the institution by combining all of the instances in which the library contributes value to some task or project, weighting each such task or project in proportion to its own contribution to the goals and objectives of the university at large. This is, at present, only a broad conceptual structure, which can not be implemented. Universities have extreme difficulty in assigning any kind of relative weight or importance to their various missions, generally adopting (at least for the public) the stance that all components of the university mission are essential and therefore equally important. Similarly, it would be quite difficult to assess the importance of any single task or project as a contribution to any of the specific objectives of the university. However, even if this embedding of the results of a study such as ours into a larger economic picture of the institution can not be completed, we believe that there are techniques which will permit meaningful comparison of distinct modes of library operation in this setting.

The idea behind our analysis is to take as a kind of constant or invariant the ability of the users of the library to assess the value of the library to their own tasks or projects. In other words, if the library, over a span of some ten years, is increasing its value to the tasks and projects of its users, then the natural presumption is that it is increasing its value to the institution. That assumption could only be questioned by a concrete demonstration that in some way the tasks and project of the users have evolved to be less in line with the goals of the university during the same period. Therefore, we believe that it is of importance to gain a deeper understanding of the value of the library to tasks and projects of the users.

1.6 The Nature of Library Value

Where does this value lie? How, in fact, does the library aid those who use it? Broadly we conceptualize this in terms of three different activities which generally take place when a person uses a library: Acquisition, Cognition, and Application. Acquisition is the process of getting in touch with, touching, hearing, or seeing as appropriate, the devices or materials that bear the information sought. Cognition is the process by which the library patron "understands" the information in these materials and fits it somehow into his or her mental apparatus. Finally, Application occurs when the patron makes some use of this newly understood information.

The application may consist of any action taken in consequence of the understanding of the information. That action may be a search for further information, because the present instance raised more questions than it answered, it may be a specific decision taken, an experiment designed, a policy introduced, etc.

Working within this framework to define the value of the library for those who use it, and by implication for the institution that supports it, we have designed a study involving three instruments.

1.7 The Costs of Services

We study the costs of library services from the point of view of unit cost, or functional cost analysis. Unit cost analysis in production industries seeks to assess the total cost of producing a single object, such as a toothpick or a computer. The analogous concept for service industries involves defining specific units of service. Thus, the task is to assess the costs per service unit delivered. The specific point of view taken here does not address economic subtleties such as economies of scope or economies of scale. Rather it follows established accounting procedures that allocate all internal costs not directly associated with any particular service, to the range of services provided. Details, including a discussion of some special problems arising when one studies less than the entire institution, are given in Chapter 3.

1.8 Scales for Assessing Value

We have studied the value to users in terms of scale questions on an interview instrument. In these scale questions users are asked to represent their response with regard to something like the importance of a service on a 7-point scale. Such scales are generally recognized as having ordinal validity, but it is questionable whether they can be treated directly as interval scales of the type needed for most economic modeling. The specific set of questions that we used in the second wave of our study were refined through earlier preliminary studies, and still represent, in our judgment, a work in progress. Details of the questions themselves and of the potential that they offer for the development of one or more abstract scales of library value are given in Chapter 2. Instruments are reproduced in Appendix A.

1.9 Development of Taxonomy

The third aspect of our study is the collection and analysis of open-ended responses to questions about the tasks or projects that brought patrons to the library and about the value of the library for those tasks or projects. For the most part, this is aimed at developing a coherent taxonomy or classification of the kinds of value that users find in library services. We have found, in developing codes and categories for the analysis of these texts, that they form what is called a polyhierarchical structure. That is, even a brief response may reveal several different but overlapping aspects, each of which naturally falls into its own hierarchical structure. In general, we have limited ourselves to the assignment of no more than three specific codes to a brief (generally less than 100 words) answer given by a patron. The details of the development of this taxonomy, and of our study of the reliability of the codes thus defined are given in Chapter 4, and further in Appendices B and C.

1.10 Overview of the Libraries and Services Studied

The study involved five large academic libraries in research oriented universities, thus the libraries can be considered both academic and research libraries. The universities participating in the study are shown in Table 1.1.

Table 1.1 Participating Universities.

- University of Maryland: A publicly supported research university with approximately 19,700 students.
- New York University: A privately supported research university with approximately 21,400 students.
- Princeton University: A privately supported research university with approximately 6,400 students.
- Columbia University: A privately supported research university with approximately 14,700 students.
- Rutgers University: A publicly supported research university with approximately 33,100 students.

Number of students refers to full time students on the campus where the library is located.

The universities above are not listed in any particular order. Later in the report, including in the table in this section we shall refer to libraries studied by number as Library 1 to 5., without reference to any given university. In other words, the numbering of libraries from 1 to 5 does NOT correspond to the order of listed universities. We do this to preserve the anonymity of services studied.

The study involved two time frames or periods during which interviews were conducted, respectively called Wave 1 and Wave 2. Wave 1 involved interviews with users immediately upon receipt of service. The interviews of Wave 1 were conducted during the Fall of 1993. In Wave 1 we concentrated upon value assessments which are perceived and articulated by users as soon as they finished receiving library service. After preliminary analysis of results from some of the libraries the instrument was revised and tested at additional services. The instrument was then elaborated for use in a set of interviews conducted in Spring 1994, which we call Wave 2. Wave 2 sought expressions of the longer term value, which may be also perceived as impact, of the information gained and its relation to the task(s) of the individual and mission of the institution as a whole. In this way we obtain both short and longer term assessments. The interviews of Wave 2 were conducted in two parts, for respondents who visited the library. The first part, which we informally labelled "audition", assessed immediate perceptions of value. The second part, administered by telephone, approximately two weeks later, obtained somewhat more long-term impressions. These were informally referred to as "callbacks". For respondents whose participation was solicited by mail or online, Wave 2 interviews consist of a single telephone interview approximately two weeks after the library use event. The details of data collected for each service and each of the Waves is given in Part 2.

A general model for questionnaires was developed first, then adjusted to fit specific characteristic of each service studied. Thus, all the questionnaires for different services were specific to the service, but followed a general model that allowed for analysis of them all together. All the instruments are presented in Appendix A.

Interviews were conducted by trained interviewers following the questionnaires and instructions. The manual for training of interviewers is in Appendix E, and instructions for interviewing in Appendix H.

The figure below summarizes the services studied and methods used.

SERVICES STUDIED

LIBRARY 1

- Reference Services
  - Information desk
  - In-person reference
  - Reference consultation
- Materials Delivery Service

LIBRARY 2

- Art and architecture library - the collection
- Biology library - electronic reference services
- Psychology library

LIBRARY 3

- Enhanced online catalog
  - on-site
  - phone
- Undergraduate reserve service
  - students
  - faculty
- Science document delivery service
- Carl Uncover pilot program

LIBRARY 4

- Electronic reference services
- Music and media center
  - students
  - faculty
- Interlibrary loan service

LIBRARY 5

- Patents service
- Reference
- Automated reference

Exhibit 1.1

METHODOLOGY

- On site intercept
- Telephone
  - online volunteers
  - paper form volunteers
  - postcard volunteers

SAMPLE

- Faculty
- Graduate Students
- Undergraduate Students
- Non-institution affiliated users

Exhibit 1.2

Table 1.2 elaborates this, with very brief descriptions. More detailed descriptions of each service are given in Part 2 of this report, Section 3.2 The Codes given in the first column of this table are referenced again in Chapter 3, where we present the results of the Cost Analysis.

Table 1.2. Table of Services Studied.

Code	Lib.Service	Brief Description
R5	L1.S1.1	Information Desk
R8	L1.S1.2	Reference Desk, Branch 1
R4	L1.S1.3	Reference Desk, Branch 2
R7	L1.S1.4	Reference Consultation Service
D1	L1.S2	Materials Delivery Service (MDS)
L1	L2.S1	Art and Archeology Library
R6	L2.S2	Biology Library - Electronic Reference
R9	L2.S3	Psychology Library - Reference
C1	L3.S1	Enhanced Online Catalog Service
C2	L3.S1.V2	Remote Users
V3	L3.S2	Undergraduate Reserve Service
V4	L3.S2.V2	Undergraduate Reserve Service: Faculty

Table 1.2. Table of Services Studied.

Code	Lib.Service	Brief Description
NotCosted	L3.S3.1	Document Delivery Service
D2	L3.S3.2	Carl UNCOVER
R2	L4.S1	Electronic Reference Resources
X1	L4.S2	Interlibrary Loan Service
V1	L4.S3	Music and Media Center
V2	L4.S3.V2	Music and Media Center: Faculty
R3	L5.S1	Automated Reference Service
R1	L5.S2	Traditional Reference Service
L2	L5.S3	Patents Service

1.11 Replicability of this Study

The process in this study was a complex one, involving interviews with over 500 library users on site at the library, by telephone, and in two-part interviews whose second part was a follow up some two to three weeks after the use of the library. We believe that the methods themselves will be of considerable interest to library managers and to other scholars as well. The complete details of the process, given at a level that will enable such organizations to replicate or adapt our process are given in Parts 2 and 3 of this Report, and in a series of appendices.

1.12 Combining Values and Costs

The overall goal of this study is to relate value to costs. As we have said, the measures of value are not natural economic measures in themselves. We have, therefore, turned to a relatively new technique for the analysis of non-profit service activities, called Data Envelopment Analysis. The details of this, and of our efforts to link together the impacts and the costs are given in Chapter 5.

Finally, in Chapter 6, we consider the implications of the present study both for library practice and management, and for further research.

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2 STATISTICAL RESULTS AND SCALE DEVELOPMENT

2.1 Scale Variables and Metrology

All of our survey instruments contained many binary or scaled questions. On the one hand, these questions permit us to report the profile of user responses. These responses are of interest in themselves, as they tell us things like the frequency with which the library is rated very highly, the experience that patrons have with purchasing information (extremely low) and so forth. In addition, standard techniques from the social sciences often make it possible to extract one or more underlying factors which can be used to develop a scale for measurement of some abstract concept.

In this case the abstract concept of interest is "the importance of the library in the context of the user's task or problem". To expose this factor we included a number of questions specifically asking for the importance and for other variables that we thought might clarify the concept such as "Was what you got from the library worth the time that it took to get it?" and "How confident are you in the information that you received from the library?". A good metric scheme or metrology should extract, from the data, a measure of the impact on the users which distinguishes among services and service events, and bears some sensible relation to the costs of providing the service.

2.2 Reliability Analysis

The set of such questions, shown in Section 2.6.3 were analyzed in two ways. One makes use of a technique called reliability analysis which explores the extent to which the set of questions together can be used additively to define a single measure of some underlying concept. The corresponding statistic is a reliability co-efficient called Cronbach's Alpha. The results of this analysis were discouraging, as the overall reliability of the set never exceeded 60%, and there were no single items whose removal produced a very substantial improvement in that score.

2.3 Factor Analysis

We then considered the possibility that the set of questions were driven by two or more underlying factors which must be resolved in order to develop a scale. This was studied using factor analysis, with a technique called principal axis factoring (which takes into account the fact that every one of the variables may be composed of both a contribution due to underlying factors and a contribution due to its own idiosyncratic variation) and a technique for "rotating the factors" called oblique minimization which allows for the possibility that the underlying factors are not totally independent of each other ("orthogonal") but may have some interaction with each other.

The results of this analysis were initially encouraging, as they revealed two underlying factors. One, driving two of the variables (low difficulty in use and high confidence in the information) does not seem directly related to our goal of measuring the impact. However, it is interesting to note that confidence in the information, which one would think of as a highly cognitive variable strongly dependent on the task and problem context, is most closely related to a simple variable, lack of difficulty in use, related to the acquisition process itself. (For technical reasons since the question was coded in terms of increasing difficulty, a surrogate variable obtained by subtracting the difficulty score from 8 was used to represent the lack of difficulty).

The remaining factor contributed heavily to the variables that seem to us most likely to measure the value of the library service. In fact, had we been able to terminate our analysis at this point, the results would be quite positive. However, our goal is to develop a bi-variate representation in which the impact and the costs are considered jointly. Such a representation will not be very interesting unless the levels of impact associated with the different services (recall that we are only able to assign a cost to a unit of service overall, and can not assign a cost to the individual instances of use) can be distinguished in terms of the impact measure.

2.4 Variation of Value with Service

With this in mind, we undertook a simple analysis of variance on the factor score which seems to underlie the several measures representing value. The purpose of an analysis of variance is to determine whether the differences between the average levels of a variable, for the several different services, are relatively large compared to the amount of variation of that variable within any particular service. The results here were disappointing, as there was no significant difference among the average levels of this "impact factor score" among the various services studied. It is for this reason that our analysis using data envelopment techniques (see Chapter 5) is at this point prospective and theoretical rather than determinative of the relationships of interest.

Of course, any negative result immediately raises a research challenge. We have found that the set of questions that we use does not resolve the levels of impact in a distinguishable way. One possibility (the totally pessimistic view) is that it is not possible by any means to resolve those levels of impact. Setting this aside, we ask what aspects of the present situation may have led to the negative results that we find here even if the concept of impact is indeed measurable.

2.5 Confounding Factors: The Local Context

We believe that the outstanding confounding or limiting factor is the fact that each interview was conducted in a way which provides an overwhelmingly local context. That is, the patron is directed (as in all techniques related to the critical incident method) to focus on a specific use of the library. The benefit of this is well known, as it eliminates halo effects and decreases the chance that the patron is simply telling us what she or he thinks about the library in general. The negative consequence, which causes problems for the present research, is that that same isolation and focus inhibits any tendency that the patron might have to mentally compare this particular instance of library service with other instances in her or his experience. Because of that, we do not have very much prospect of obtaining a globally calibrated metric result. To put it in simplest terms, if all I wanted from the library this particular day was to photocopy an article and I managed to do so, I may be extremely pleased. That this article is of very little importance to me is something which is not addressed by the set of questions that we have framed, and formulating questions for this is a challenge which we will take up in Chapter 6.

The remainder of this chapter is a detailed exposition of the most interesting of the statistical results that we have found.

2.6 Detailed Statistical Results

2.6.1 Descriptive and Demographic Variables.

The results for each varaiable are presnted in tabular form, showing the groups, the internal "Value" repesenting that group, the frequency, and the frequency represented as a Percentage of all cases or of all valid cases.

```
2.6.1.1 AGEGRP    Age of interviewee
Value Label                  Value  Frequency    Percent
                               .00          2         .4
Under 18                      1.00          3         .6
18-25                         2.00        172       32.6
26-29                         3.00        119       22.6
Thirties                      4.00        120       22.8
Forties                       5.00         73       13.9
Fifties                       6.00         26        4.9
Sixties or above              7.00         12        2.3
                                .           1    Missing
                                      -------    -------
                             Total        528      100.0
Valid cases      527      Missing cases       1
```

The preponderance of the respondents are under thirty.

```
2.6.1.2 AREAST    Area of study

                                                   Valid
Value Label                  Value  Frequency    Percent

Humanities                    1.00        142       27.5
Social science                2.00         96       18.6
Natural science               3.00         83       16.1
Engineering                   4.00         14        2.7
Professions                   5.00        142       27.5
Other                         6.00         33        6.4
                             88.00          7        1.4
                                .           1    Missing
No response                  -1.00..       10    Missing
                                      -------    -------
                             Total        528      100.0
```

A complete list of the specific disciplines assigned to each of these groups is given in the manual.

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2.6.1.3 FRESER How frequently do you use the service

Value Label	Value	Frequency	Valid Percent
No response	.00	2	.5
Less than a month	1.00	74	19.1
Once a month	2.00	49	12.6
2-3 times a month	3.00	97	25.0
4 times a month	4.00	39	10.1
More than 4 a month	5.00	127	32.7
	.	140	Missing
	Total	528	100.0

This question was introduced early in the first version of the instrument, and was later dropped because we found that it framed the interview in terms of the service, making it very difficult for respondents to address the key issues of context and purpose.

2.6.1.4 GENDER Sex of interviewee

Value Label	Value	Frequency	Valid Percent
Male	1.00	258	48.9
Female	2.00	270	51.1
	Total	528	100.0

The sexes are quite equally represented in this sample, suggesting that they are quite equally represented among the users of the library. It would be of interest to compare this with the distribution of students, by sex, at each of the institutions.

2.6.1.5 LIBRY Library

Value Label		Frequency	Percent	Valid
U. of Maryland		112	21.3	
NYU		95	18.0	
Princeton		115	21.8	
Columbia		110	20.9	
Rutgers		95	18.0	
	.	1	Missing	
	Total	528	100.0	

The study obtained nearly equal numbers of respondents from each of the institutions.

2.6.1.6 STATUS Patron category

Value Label	Value	Frequency	Valid Percent
Fac/Sta	1.00	92	17.4
Graduates	2.00	334	63.3
Undergraduates	3.00	91	17.2
Others	4.00	11	2.1
	Total	528	100.0

Although we would have liked to obtain more faculty input, faculty are not as well represented among the users of the library as are graduate students. Undergraduates were interviewed in cases (such as reserve service) where they are the primary users of the service, and where there was too little traffic to meet sample quotas without including them.

2.6.2 About the Impact of the Service

Distribution of Responses

Name of Variable	Label	Cases	Yes	No
ALTWAY	Other alternatives	386	79%	20%
HURTFL	Did the service hurt	12	17%	83%
IMPACT	Impact or no impact to your project	134	90%	10%

A substantial fraction of the respondents felt that there was another way that they could get the service which they obtained from the library. Very few reported that the service was in any way hurtful to their activities. This was a conditional question, only addressed to those who assigned a very low score to the benefit derived form the service. Finally, 120 of the 134 to whom the question was addressed, reported that the service did have an impact on the project which brought them to the library.

2.6.3 Scale Variables for Impact of Service

The following variables have all entered into our attempts to develop a scale for measuring impact. We note that most responses are located at the very positive end of the scale. A discussion of the efforts to build a scale is given in Sections 2.1-2.5

Scale-Type Variables. Generally 1=Very Little .. 7=Very Much

			Response						
Name	Label	Cases	1	2	3	4	5	6	7
AHELPFL	How Helpful Was Service	98	0%	1%	7%	12%	23%	20%	36%
ALTCON	Convenience to go elsewhere	304	35%	19%	18%	13%	6%	4%	6%
CLRDEF	Clarity of reason for using ser	526	0%	2%	1%	2%	9%	17%	69%
CONINF	Confident of information	320	1%	3%	0%	4%	13%	27%	52%
DIFFIC	Difficulty in using the service	524	53%	24%	7%	4%	7%	3%	1%
HELPFL	How helpful was service	210	7%	1%	2%	7%	15%	28%	39%
IMPORT	How important was impact to your project	116	1%	1%	5%	10%	22%	28%	34%
SUCCES	Success using SER	306	4%	2%	4%	5%	11%	17%	57%
TIMBEN	Time spent vs. benefit obtained	523	1%	3%	1%	5%	12%	20%	59%

We see that library patrons are very satisfied with the services that they receive, and judge them to be very important to their goals and projects.

2.6.4 Experience with other University Services

Name of Variable	Label	Cases	No	Yes
ACCOUNT	Have you dealt with accounting	17	88%	12%
COMPUT	Have you dealt with computing	17	35%	65%
LIBRAR	Have you dealt with the library	17	0%	100%
MAINTEN	Have you dealt with maintenance	17	59%	41%
OTHERSRV	Have you dealt with some other service	14	86%	14%
PERSON	Have you dealt with the personnel service	17	65%	35%
PURCHAS	Have you dealt with the purchasing service	17	82%	18%
SECUR	Have you dealt with the security service	8	63%	38%

These questions, aimed at eliciting some estimate of how other internal university services are evaluated by library users, were added only in Wave 2, and were addressed only to faculty respondents. There were very few, and even fewer who had actually used any of the services. This makes the discussion of their responses almost academic, but the responses are summarized below.

2.6.5 Assessment of the Importance of other University Services

Scale-Type Variables. Generally 1=Very Little .. 7=Very Much

Name	Label	Cases	1	2	3	4	5	6	7
ACCTIMP	Importance of accounting	2	50%	50%	0%	0%	0%	0%	0%
COMPIMP	Importance of computing	11	0%	18%	9%	18%	0%	18%	36%
LIBRIMP	Importance of using library	17	0%	0%	0%	0%	0%	29%	71%
MAINIMP	Importance of maintenance	6	0%	17%	17%	17%	17%	33%	0%
OTHERIMP	Importance of other service used	4	25%	0%	25%	0%	25%	0%	25%
PERSIMP	How important was the personnel service	6	17%	0%	17%	17%	33%	0%	17%
PURCHIMP	How important was the purchasing service	3	0%	0%	0%	0%	0%	33%	67%
SECURIMP	Importance of security service	3	33%	0%	33%	0%	0%	33%	0%

2.6.6 Experience with Purchasing Information Services

Name of Variable	Label	Cases	Yes	No
ANWAY	Have you looked at cost or price of alternate	138	14%	86%
PURCHINF	Have you purchased any information services	139	20%	80%
OTHEERFUN	Did you pay for service with other funds	25	0%	100%
PERSFUN	Did you pay for service with personal funds	28	86%	14%
RESFUN	Did you pay for service with research funds	27	15%	85%
TEACHFUN	Did you pay for service with teaching funds	27	4%	96%
UNIVFUN	Did you pay with other university funds	27	15%	85%

Only 28 of the 139 respondents to whom the question was addressed had ever purchased information in any form. This is at the heart of the inability of respondents to assign dollar value to information services, and we will discuss it further below. Of the few who have done so, the overwhelming majority purchased information using their own funds, rather than funds for research, teaching or other university functions.

[[Source files: APLAB-11\clr\summary.wq1; summary.51; dta-07\clr\spss\PBK-14b.lst; PBK-20.lst]]

3 COSTS OF LIBRARY FUNCTIONS AND SERVICES

3.1 General Principles

Our determination of library costs follows general principles for unit cost accounting. The application of these to the library setting has been set out in considerable detail elsewhere [Kantor 1984, 1986c, 1989a] and will not be reviewed here. It is not difficult to identify the direct costs associated with a particular service, such as the supplies consumed or the labor of people who work on no other service. It is somewhat more difficult when individuals work on several services, but well established techniques can be used to allocate their time among those services. Essentially, there are two difficult problems in the cost allocation: allocation of salaries, and allocation of the cost of shared resources. The techniques used in this study are adapted, with permission, from the Tantalus Inc. FUNCOST software for library cost analysis. Details of the data collection are given in the Appendices.

3.1.1 Methods for Cost Analysis: General Principles

To begin, we situate our model for cost analysis in the general framework of economic analysis. There are several ways in which costs can be divided, and we have necessarily made some choices with regard to each of these options.

To begin with, costs can be divided in to start-up costs and ongoing costs. In this project all services had been established some time before the analysis was done, and only ongoing costs are considered. Costs are further divided into fixed costs and variable costs. The fixed costs are those costs necessary to provide the service at all. For example, a circulating collection must contain some books. The variable costs are those costs which are approximately proportional to the volume of services. In the accounting model of cost analysis used here, the average costs are reported. This is similar to treating all costs as variable costs.

Thus the unit costs reported here, while they provide a full account of expenditures, cannot be used as reliable predictors of cost change for all other situations. For example, if the volume of service increases moderately, the corresponding increase of cost, at the same level of service quality, will probably be less than the figure reported here. If, however, the present system is operating close to capacity, an increase in volume is likely to produce a noticeable decrease in service quality, unless there is some compensating investment in equipment, personnel, or both. Such a quantum jump in capability would result in an increase in the average cost of service.

Economies of scale, which may be either positive or negative, represent deviations from the straight-line dependence of variable costs on volume of service. For example, with positive economies of scale, the average unit cost decreases as the volume of service increases at constant service quality. Similarly, with positive economies of scope, the total cost of providing several different types of service will be less than the sum of the costs of providing them separately. It seems reasonable to suppose that economies of both scale and scope are present in library operations, and in the electronic versions of information service that are an increasing factor in library operations. However, this study is, by design, limited to consideration of services in isolation, and at a few libraries. Thus it is not possible to model either economies of scale or economies of scope.

To sum up, our model calculates, for each service, the average unit cost of service at the present level of operation. All shared resources are pro-rated, using appropriate methods, to the one service under consideration, and to "all other services". This method probably under-estimates the cost of providing any particular service on a stand-alone basis. This shortcoming is not of interest to the community of research libraries, who are the primary audience for this study, as they do not offer services in isolation.

Costs of equipment are normally dealt with by reference to depreciation tables, or amortization schemes, which are, in turn, developed by industry in response to the tax laws. Since all of the institutions studied are non-profit, this information is not available. We have assumed throughout that computer equipment is to be expensed over a three or a five year period, depending on the likely reasonable life. We note that the reasonable life of computer equipment today is determined more by considerations of obsolescence than by considerations of maintenance and useful working life.

3.1.2 Methods for Cost Analysis: Worked Example

The principles of analysis are illustrated here for a single worker, and for a single piece of shared equipment. For full analysis this procedure is applied in turn to each worker, and to each shared resource, and the resulting costs are summed.

3.1.2.1 Analysis of salary expenditure distribution

We suppose that a particular worker "ABC", with annual salary $30,000 has reported the following distribution of time over several activities:

Name	Salary	Direct Service	Support Service	Other Service	Administration	Prof. Devpmnt
ABC	30,000	10	12	12	8	3

The distribution reporting figures may be percentages, or they may be hours per day, hours per week, or weeks per year. The analysis utilizes only the ratios among these distribution figures, so that the choice of a base does not matter, and there is no need to require that the distribution figures total to 100%, or to a specified number of hours per day or per week.

In this analysis "Direct service" refers to the service whose cost is to be calculated. "Support service" refers to one or more activities which contribute solely to this visible service. For example, if the direct service is circulation, reshelving is a support service. If the direct service is an online catalog, programming is a support service, and so on. The first step in the analysis is to combine the support service into the direct service. The results is:

Name	Salary	Direct Service	Support Service	Other Service	Administration	Prof. Devpmnt
ABC	30,000	10	12	12	8	3
ABC	30,000	22		12	8	3

The next step is to simply remove the figure related to professional development. This amounts to increasing the cost of all other activities as if that share had been distributed over it. In other words, the cost per unit of this person's work on end-products is increased.

Name	Salary	Direct Service	Support Service	Other Service	Administration	Prof. Devpmnt
ABC	30,000	10	12	12	8	3
ABC	30,000	22		12	8	3
ABC	30,000	22		12	8	

Next, the administrative cost is distributed over the services themselves. In the most complex case, there may differing proportions to apply, in which case Administration must be treated as another form of support service. In our analyses this appeared necessary at one library. However, as it was later decided to eliminate administrative costs from all calculations, the details will not be given here. Thus, for practical purposes, the calculation of labor cost concludes with the distribution of the annual salary, in the proportions indicated here. That is, we do not "burden" the reported costs with administrative costs. For example: the cost assigned to the Direct Service of interest is:

30,000*(22/(22+12+8)=30,000*22/42=15,714.

Numbers are rounded to the nearest whole dollar, so that the results may not sum exactly to 30,000. They should, however, be within a dollar or two.

Name	Salary	Direct Service	Support Service	Other Service	Administration	Prof. Devpmnt
ABC	30,000	10	12	12	8	3
ABC	30,000	22		12	8	3
ABC	30,000	22		12	8	
ABC	30,000	15,714		8,571	5,714	

3.1.2.2 Analysis of equipment and other expenditure distribution

The treatment of costs of equipment and other shared resources is much the same. For example, for a central computer with a purchase cost of 40,000 and an annual maintenance of $5,000 we assign an annual cost based on a five-year lifetime:

Annual cost = 40,000/5 years + 5,000/year=

=13,000/year.

We then distribute this cost according to some reasonable measure of the use of the computer. Suitable candidates for this measure include: the number of ports dedicated to a service; the number of CPU cycles (or CPU seconds) consumed by that service, or the number of terminals provided for the public to access that service. In all of the services studies here, the number of terminals was used as the basis for cost assignment.

A typical calculation looks like the following:

Equipmt	AnnCost	Direct Service	Support Service	Other (1)	Other (2)	Other (3)...
Server1	13,000	5	1	3	2	2

The distribution of the cost to the direct service of interest is then

13,000*5/(5+1+3+2+2) = 13,000*5/(13) = 5,000.

Equipmt	AnnCost	Direct Service	Support Service	Other (1)	Other (2)	Other (3)...
Server1	13,000	5	1	3	2	2
Server1	13,000	5,000	1,000	3,000	2,000	2,000

3.1.2.3 Example Calculation of a Unit Cost of Service

Finally, the costs of all labor, and of all equipment (of which only the two representatives just calculated are shown here) are combined and divided by the annual number of service events. This number may be either the result of a complete tally, or an estimate based upon a typical week (or month) or some other sampling study of the use of the service. In this example we suppose that there are 15,000 service events per year.

Origins	Value
Labor Cost	15,714
Computer Server1	5,000
Total Cost	20,714
Service Volume	15,000
Unit Cost(Average)	$1.38

3.2 Administrative Costs

Most university libraries engage in some degree of collegial management, with the result that almost all workers spend a certain amount of their time in committee meetings and related activities having to do with the administration and management of the library. The problem in general is how to allocate that time to the specific activities. When the library as a whole is being considered one may argue that all of that time should simply be allocated against all of the identifiable services. It is typically allocated in proportion to the total salary expense of the services, in accordance with established customs for the accounting of administrative overheads.

However, in this particular study we did not analyze all of the services and functions provided by each participating library. This means that we do not know the correct base on which to allocate the administrative time, particularly committee work, among the several services. After some efforts to reconstruct this data by extended conversations with the libraries involved we came to the conclusion that it would not be possible to develop uniformly reliable and comparable measures across the several libraries. Examples of the problems are (1) library administrators who are involved in supervising multiple services and who would have to allocate their time against all of those services, requiring a much more detailed cost study than has been undertaken here and (2) library professionals who spend a significant amount of time in committee meetings but have no natural basis for allocating that committee time among the several tasks on which they spend their time.

In view of these difficulties we have sought to strip away the administrative component of the costs as they are reported for each specific service. Technically, this has been done by counting all administrative time as if it were another identifiable service activity. In other words, it is as if we said that the library provides reference services, access services, administrative services and so forth to itself. In fact, we know that these internal services simply serve to add value to the specific deliverable services.

We believe, based on our examination of the raw data, that there are substantial variations to be observed in the ratio of administrative costs for a service to the other direct costs of the service. We are not in a position to separate that variation into its two most natural components: variation due to the nature of the service being managed, and variation due to the nature of management procedures at the library being studied. These issues are of enormous importance in connection with the total quality movement in library studies, but are beyond the scope of the present research.

3.3 Costs of the Collection

In addition to the problem of administrative costs there is the enormous problem of how to deal with the cost of the collection, and of the organization of that collection, in determining the functional or unit costs. In a full scale study of a library this is done by forming all of those costs into an overhead pool and allocating them among several services in proportion to the degree to which those services make use of the books and other materials in the collection. In this case we do not have the broad scope of information necessary to complete this. For most of the services it does not seem to be an issue. For reference services we are therefore not including the costs of the specific collection of reference materials maintained, and at the same time setting aside any consideration of the use that reference service makes of the collection as a whole.

However, for one of our specific studies it is not possible to sidestep this question. That is the use of the non-circulating collection at an Art & Architecture Library. In this case we have accepted the annual book purchase cost, and the assigned share of central processing costs, as costs of the service provided. In the same spirit, we have included the cost of the reserve materials at an undergraduate reading room. However, it was not feasible to use the same approach in determining the costs of the audio-visual center at a different library. Similarly, the cost of developing the catalog records, which are accessed by the online system, have not been included.

Fringe costs were systematically excluded, to make the comparison more uniform. We did, however, use the actual labor costs. There are variations in wage scale, as two of the libraries are in New York City, two are in New Jersey within 50 miles of New York, and one is in suburban Washington DC.

3.4 Summary of the Cost Data

Bearing these caveats in mind, we now turn to a summary of the costs of the specific services. To assure the confidentiality of the libraries, we have separated the numbering of the libraries from the naming of the libraries, as described earlier.

Table 3.1 Reported Costs of Services, labelled by general category of service. Services are presented in increasing order of unit cost. (*D=Materials Delivery. C=Catalog or online service. R=Reference Service. V=Reserve Collection. L=Entire Collection. X=Other service. See more detailed descriptions of the services in Volume 2: Process.*)

Cost	Code	Lib.Service	Brief Description
N/A	XX	L3.S3.1	Document Delivery Service
0.70	C1	L3.S1	Enhanced Online Catalog Service
0.70	C2	L3.S1.V2	Remote Users
1.16	R1	L5.S2	Traditional Reference Service
1.88	D1	L1.S2	Materials Delivery Service (MDS)
2.00	R2	L4.S1	Electronic Reference Resources
2.65	V2	L4.S3.V2	Music and Media Center: Faculty
2.65	V1	L4.S3	Music and Media Center
6.12	L1	L2.S1	Art and Archeology Library
6.87	R3	L5.S1	Automated Reference Service
8.18	R4	L1.S1.3	Reference Desk, Branch 2
8.59	V3	L3.S2	Undergraduate Reserve Service
8.59	V4	L3.S2.V2	Undergraduate Reserve Service: Faculty
12.30	X1	L4.S2	Interlibrary Loan Service
14.62	L2	L5.S3	Patents
18.35	R5	L1.S1.1	Information Desk
18.80	R7	L1.S1.4	Reference Consultation Service
20.35	R6	L2.S2	Biology Library - Electronic Reference
33.36	R8	L1.S1.2	Reference Desk, Branch 1
35.52	R9	L2.S3	Psychology Library - Reference
36.13	D2	L3.S3.2	Carl UNCOVER

We see (not surprisingly) that costs range from a low of less than a dollar, typically for the use of some computer-supported service that is heavily trafficked (and for which we have not included the costs of developing the underlying database), to a high of over thirty dollars, for some classes of reference and materials delivery services. These figures must be regarded as approximate, since there are variations in the degree to which certain administrative costs have been included, there are arbitrary decisions made in distributing the cost of shared equipment, and they do not include fringe costs. However, we are confident that they accurately represent the range of costs for the services considered.

We note that the range of costs for reference services is enormous: from a low of $1.60 to a high of 35.52. The low end is surprising, while the high end is consistent with the results of other detailed studies of reference costs in the context of full library studies. This figure is, presumably, completely unsuspected by patrons who assign a value of $5-$10 to a library service event. Of course the average cost of this service is hard to control, since the library sets out the service, but the patrons do or do not make use of it.

Similarly, the two materials delivery services vary enormously in cost. Interestingly, the two cases in which we studied an entire collection fall into the middle of the range, with the specialized patent operation being somewhat more expensive than the (equally specialized) art and architecture setting. As has been determined in other studies, interlibrary loan service costs far less than the cost of buying and processing a book, although we note that this includes only the costs experienced by the borrowing library.

More detailed confidential reports have been prepared for the participating libraries, and those will permit further discussion of the accuracy and comparability of the numbers presented here. Ultimately the participating libraries, which have been assured confidentiality with regard to cost and performance data may or may not decide to meet and share that information.

4 DEVELOPING A TAXONOMY OF VALUES FOR LIBRARY SERVICES

4.1 Framework: assumptions, definitions, approach

In seeking and using a library service a user engages in an interaction with a library. That interaction may be studied and characterized from a variety of perspectives - individual, social, technological, economic and so on. While traditionally the interaction involves direct physical proximity to the library, with the advent of telecommunication and computer technologies the interaction can also be remote.

In this part of the project we have concentrated on a study of the reported perceptions of the value that individuals derive from interaction with a variety of library services. The objective is to derive a taxonomy of values of library services as perceived, identified, and assessed by users. As such, it is not based on a prior theory of value. In so far as the data we have gathered lead to a coherent picture, that picture can be said to represent a "grounded theory" whose validation must depend on further applications of it.

Given the scope of this study, the data from which our taxonomy is built reflects the concerns and language of users of academic libraries. It is useful therefore to distinguish between the "empirical taxonomy" (ET) as set out in Appendix B, and the "derived taxonomy" (DT) explicated in this portion of the report. We believe that the structure and broad classes of the DT are valid for many kinds of libraries, and information services, while the specifics of the ET will be adjusted (deleted, added, redefined) as appropriate to diverse services. In addition we go into considerable detail about the process of deriving and testing the taxonomy because we believe that it can be replicated and applied by others interested in the issues of library economics.

We review the three premises of this analysis:

1. Users interact with a library service, that is, use or attempt to use a library service, for a given reason or reasons. While during the interaction the reason(s) may be altered or changed, they are still present at all times.

2. As an outcome of the interaction, users obtain responses or results, be they positive or negative.

3. Users evaluate or assess the interaction and the responses or results in relation to their reason(s) for using the library service(s).

In assessment of value, the "reasons and interaction" may be considered as a cause and "results or responses" as an effect. When examined in more detail, however, both of these are complex and may involve a number of distinct conceptual variables.

The value of any library service is then assessed, using judgment by users (or user surrogates), about the qualities of the interaction with the service and the benefits, or worth of the results of the interaction. Ideally, this is assessed, by the user, in relation to the reasons for using the service. A complete value assessment would establish a relation among: the reasons for using a library service, the processes in interaction and the results or responses obtained.

With this conceptual framework, our questions to the users were addressed to elicit, from the users, the following facets:

1. Reasons for use,

2. Qualities of interaction (use) related to a given service, and

3. Worth, benefits or implications of subsequent results from the use.

Results may be considered the "product" of interaction with a service. As in other service situations, the value to the user is a composite of both the service and the product and not just the product alone. This is a principle of assessing quality in Total Quality Management (TQM) where, for example, the accuracy of support services is assessed jointly with service characteristics such as cycle time or responsiveness.

4.2 Related works and concepts

Libraries' information services have been evaluated or assessed from a number of perspectives. Of concern here is evaluation from the perspective of users. There is a sizable literature on the need for "user-centered evaluation" (Bawden, 1991). Such studies have been conducted using a variety of measures, such as: satisfaction, success, utility, relevance, completeness, precision, timeliness, accuracy, impact and many others (Baker & Lancaster, 1991, Kantor 1984). Many such studies are based in one way or another on some assessment involving user judgement of value.

There is also a substantial literature on the notion that library processes "add value" (Taylor 1986). But the value itself, while much written about, is rarely studied with support of empirical evidence. While there is a place for theoretical, logical and philosophical reasoning (e.g. Taylor, 1986) there is a need to develop a substantial body of reproducible empirical evidence.

One of the few studies of value related to an information service which involved empirical evidence was an assessment of the impact of using MEDLINE (Wilson et al. 1989). Using a critical incident technique in surveying a large number of MEDLINE users, the analysis resulted in three taxonomies: reasons why individuals needed information from MEDLINE, reasons why individuals chose to do a MEDLINE search (rather than use other means of obtaining information), and impact of the information obtained from MEDLINE on medical decision making.

Finally, a recent set of on value and impact of information studies, sponsored by the British Library Research, addresses many of the issues treated here, but in addition , a number of policy issues are treated as well (Feeney & Grieves, 1994).

The taxonomies were very specific, because they all evolved around a single discipline, medicine, and a single activity, medical decision making. As yet, no comparable taxonomy has been attempted involving values appropriate to a multitude of library services, for a multitude of reasons, and a number of disciplines, as we do here. In this sense the present work is a pioneering effort, with all the implied limitations.

Related to study of the value of library services is the study of value of information in economics and management science. A review is given by Repo (1989). There a distinction is made between exchange values which involve information resources, products and services in a framework of the information market, and value-in-use in a framework of use of information by individuals and their information tasks. Exchange values can be studied by exploring the market for services, following the tools of economics.

However, value-in-use involves cognitive aspects and has to be studied using primarily cognitive, problem-solving, and decision-making concepts. In a sense, this is an example of the economic theory of the value of information. However, that framework is most developed when the expected utility theory of value can be applied and, at the present time, we do not know how to do that in the library setting. So far the two, exchange values and value-in-use, have not been successfully studied together. After reviewing many theoretical approaches, Repo concludes:

> It seems obvious that there is not a single theory which fully explains the value of information. It does not seem probable that one can develop such a theory easily. This is because the empirical fact that individuals give different values for the same information depending on context.

He suggests a dual approach to [study of] value of information:

1. The exchange value of information products (service, channel, system) should be studied using "classical" economic methods.

2. The value-in-use of information should be studied using the cognitive approach which takes the user, the use and the effects of the use of information into consideration.

In the present project we are accomplishing steps towards this synthesis, by applying accounting principles to establish a kind of market value of services, and using interview techniques to assess the impact of those services on the users.

4.3 Methodology: General approach

Traditional survey methods, with predefined characteristics, and quantitative indicators, measures and/or scales, as discussed in Chapter 2, are not suitable for exploring user motivation, and the associated bases for evaluation. Instead, the methods used for this task here are derived from:

1. Grounded theory approach, which suggests how to build models - in this case a taxonomy - from the bottom up, using raw data (Corbin & Strauss, 1990).

2. Content analysis of texts, which suggests reduction to manageable size and

classification of large quantities of text - in this case using texts of interviews with users (Weber, 1990).

3. Principles of taxonomies in social sciences, which suggests the construction and properties of such taxonomies. (Bailey, 1994).

In testing the derived taxonomy we used standard statistical methods, to assess the degree of consistency in its application by two coders. More sophisticated tests, which lead to "label-specific" assessments of consistency have been developed as part of this work, and will be reported elsewhere.

4.4 Methodology: Specific procedures

The open-ended questions (see questionnaires in Appendix A) revolve around:

1. Reasons why a user came to a library or accessed a library service at this time.
2. What did the user get out of the use; what benefits did he/she receive.
3. What would a user do otherwise, if the service were not available at that library.
4. Questions asking the user to elaborate on why he/she has given a particular score on Likert scales related to results of use

The answers to the open-ended questions were tape recorded during the interview. (Detailed statistics on number of interviews at each library and service are given in Part 2 of this report dealing with the overall methodology). The tapes were transcribed, generating some 471 pages of text, and over 1.3MB of machine readable files. Since, in Wave 2, only those respondents who could be reached for callback interview were included, there is a total of 528 interview sets that have been analyzed in detail.

Each user interview, containing all the questions and answers for a single user, was labeled with an interview number - this constituted the unit record for analysis. Unit records were arranged by wave, library, service and then by interview number. They were printed out and also provided on disks for further work by analysts.

As described above, categories were not predefined, but were identified, defined, redefined, grouped, and tested from raw data itself, that is from interviews. This was an iterative process, as follows:

1. One analyst went through all the interviews (unit records) and identified representative keywords and phrases as candidates for development of categories. He held frequent discussions with other team members about the selection of given candidates. The process analysis involved iteration, frequent revision and consensus.
2. The analyst grouped the candidate keywords and phrases into categories associated with specific topics of questions and gave each category a label or

descriptive name, and a set of keywords to be used by other coders, in applying the labels. Generally the label was taken from the users' vocabulary.

3. In this way a first cut was constructed. This is a working classification scheme (not yet a completed taxonomy) to be used for testing and later as a basis for derivation of revised versions. To facilitate analysis, codings were grouped into broad classes.

4. The original analyst then went through the whole set of interviews (all unit records), and classified user responses according to the scheme.

5. The analyst then wrote a set of instructions for the categorization of user responses, using the headings and categories in version 1 of the classification. These instructions were used to test whether the specific categories as derived, can be reliably applied in categorization of users' responses to questions in interviews. Appendix B contains version 1 of the scheme and the instructions for encoding of texts using that scheme. This constitutes the Empirical Taxonomy (ET).

6. Testing followed. Two analysts, not engaged in the process previously, were given the interviews (raw data), version 1. of the classification scheme, and instructions for coding, and asked to repeat the process to confirm interjudge agreement.

7. Then another analyst (member of the project team), worked with the broad classes and subclasses to arrive at generalizable conceptual groupings that unify the general conceptual scheme and the specific categories derived and tested in version 1. This is the second cut or version 2 of the scheme, which is a taxonomy.

8. That analyst then went again through all the interviews (raw data) and tested the version 2 scheme, making adjustments in the entries as suggested by the data in view of the taxonomy and editorial changes as necessary.

9. The result is version 3 of the scheme. Thus, version 3 is a result of both the previous two versions and repeated consultation and tests involving raw data. Version 3 is the Derived Taxonomy (DT), which is presented in this Chapter.

10. A translation or equivalency table was made to connect entries between versions 1 and 3. This translation table is also presented in Appendix B.

Version 3 (DT) has been given to two more analysts, not previously involved with the project. They will recode the raw data using that scheme. This test is in progress and will extend beyond the present project, and results will be reported elsewhere.

To sum up, once the questions had been formulated, the scheme was developed from the bottom up. Users' answers to questions were the basis, and the only basis, for its development. While these methods resulted in a specific product, the methods themselves are generalizable and can be used in development and testing of the taxonomy in all kinds of libraries and information centers.

4.5 Structure and attributes of the taxonomy

The taxonomy can be thought of as a faceted classification, incorporating levels as subdivisions. The structure of levels is as follows (where X. are letters and n. are numbers in the codes):

X. General classes

  X.n Subclasses

    X.n.n Subclasses

      X.n.n.n Specific categories

The classification is not of uniform depth, and grows according to the responses analyzed.

Here are some of the attributes of the taxonomy as structured:

1. Relations: The relations within and between different levels of the taxonomy (classes, subclasses, and categories) are based on set-member relationship, or detailed elaboration, as in faceted classifications. A class X has subclasses which are its members; subclasses are sets with other subclasses or categories as members. A specific category "Research" belongs, with a number of other categories, to a subclass "Task"; subclass "Task" belongs, with a number of other subclasses, to a class "Reasons." This is a polyhierarchical structure.

In this sense, the relations are weaker than they would be in strictly ordered hierarchical schemes. The relation can also be thought of as a denotation-connotation relation. Specific categories denote an object and connote the class to which they belong.

Selected user utterances are grouped into categories that denote (label) those utterances. In turn, the categories are grouped in subclasses that connote (imply) a common attribute shared by the set of categories. Finally, subclasses are grouped in classes that connote an attribute shared by the set of subclasses. The principles for selection of given denotations and connotations, and their structure are based on the objectives, limitations and premises given in sections 4.1 and 4.2.

2. Exclusivity: Broad classes (labeled by letters alone) are considered mutually exclusive. However, for the rest, the structure does NOT imply mutual exclusivity between categories or between subclasses. Categories may overlap and there is a certain degree of redundancy among a number of them. And, of course, an utterance may include several conceptually distinct contents.

Thus the interpretation can also differ to a degree, and more than one category may be assigned to a given user utterance describing some reason, interaction or result.

Correspondingly, several reasons, interactions or results may represent the same specific category or subclasses from the taxonomy. The relations can be one-to-many, and many-to-one.

3. Uniqueness to individuals: Each user-service value relationship is unique. Consequently, value may be unique to an individual user. What is valuable to one may not be valuable to another, or the values may differ. What is valuable to the same user in one situation, context, or time slot, may not be in another. Value is relative. Thus, a search for classification of value, as done here, is an attempt to find recurring themes, with full realization that in practice there may be wide divergence among individuals.

4. Open endedness: The taxonomy was derived from a sample of users. While the sample was large and representative of a number of library services, there could be other users and services which would call for additional specific categories of value. By necessity, any user-based taxonomy of values is not complete, but is open-ended. Additions can be anticipated and included.

5. Stability: We hope, however, that the three general classes will remain stable; that subclasses will be relatively stable, and that the greatest need for change, as this taxonomy is adapted will be at the level of the "leaves" of the tree. At the level of specific categories level changes will almost certainly appear in further versions, particularly in relation to adjustments to fit specific applications in different libraries.

4.6 Contents of the taxonomy

Exhibit 4.1. lists the general classes and subclasses in the taxonomy, without the specific categories under each. This figure is intended to show at glance the overall structure of the taxonomy. The three general classes, A. Reasons, B. Interaction, and C. Results, represent the facets related to value in using a library service, as defined and discussed in section 4.1.

Exhibit 4.1.

DERIVED TAXONOMY OF VALUE IN USING LIBRARY SERVICES

General classes

A. **REASONS** for using a library service
    A.1 For a **TASK**
    A.2 For **PERSONAL** reasons
        A.2.1 Cognitive
        2.2 Emotive
        2.3 Substitute choice
    A.3 To get an **OBJECT** or perform an **ACTIVITY**
        A.3.1 Physical (tangible) objects
        3.2 Intangible objects
        3.3 Perform an activity or work
B. **INTERACTION** with a library service
    B.1 **RESOURCES** - availability, accessibility
    B.2 **USE** of resources, services
    B.3 **OPERATIONS and ENVIRONMENT**
        B.3.1 Policies, procedures
        B.3.2 Facilities, organization
        B.3.3 Staff performance
        B.3.4 Equipment performance
    B.4 Possible **SUBSTITUTIONS** for given interactions and library service(s) that were used
C. **RESULTS** of using a library services
    C.1 **COGNITIVE** results
    C.2 **EMOTIVE** results
    C.3 **ACCOMPLISHMENTS** in relation to tasks
    C.4 Meeting **EXPECTATIONS**
    C.5 **TIME** aspects
    C.6 **MONEY** estimates

Exhibit 4.2. presents the whole taxonomy. We find three general classes, 23 subclasses, and 101 specific categories. This is our third version, which we call the "Derived Taxonomy" (DT).

Description and definition of the contents for each class and subclass are given in sections 4.6.1 to 4.6.3. Section 4.7 provides a discussion of encoding and overlaps.

4.6.1 Class A. Reasons

Class "Reasons" covers the causes, motives, bases, purposes, and/or rationale underlying the use of library services. Why do users use a library service? What do users want to get from a library service? We have subdivided Reasons into three subclasses:

A.1 Task: Covered are the activities, work, or problems with which the user is engaged that were the direct cause for using the library service. What are the users doing that prompted the use of the service? What were the users working on or wanting to work on? What problems were the users faced with that brought them to the service? Included are tasks such as: research, bibliography compiling, class assignment, project proposal, and a host of others. Most of the times there is some tangible element in Tasks, an element that can be directly observed.

A.2 Personal reasons: Covered are the private, individual reasons for using the library services. Most of the time they are intangible. What is the motivation of the users for using a library service, as far as knowledge or emotion is concerned? The Personal Reasons are further subdivided into three subclasses:

A.2.1 Cognitive, related to various aspects of learning and knowledge, staying current, or orienting oneself;

A.2.2 Affective (or emotive), related to a person's own emotional feelings or desires for using the services, like relaxation, stress reduction, feeling of satisfaction;

A.2.3 Substitute choice, related to a personal decision to use the given library service rather than some other choice.

A.3 To get an object or perform an activity: Covered are reasons associated with what the users directly intend to request from a service or what activities they intend to engage in at the library. What do the users actually want to get from the service? What will they do in the library? This subclass is further subdivided into:

A.3.1 Physical (tangible) objects: Getting a book, or other item available from a library service;

A.3.2 Intangible objects: Getting information, facts, data; being directed to other sources of information;

A.3.3 Perform an activity or work: Studying, searching, browsing and other activities a user intends to perform.

Exhibit 4.2.

Derived TAXONOMY OF VALUE IN USING LIBRARY SERVICES

General classes and specific categories

A. **REASONS** for using a library service

A.1 For a **TASK**

- A.1.1 Research
- 1.2 Dissertation/thesis
- 1.3 Project work
- 1.4 Professional and other work
- 1.5 Paper, report - writing, starting
- 1.6 Book - writing, starting
- 1.7 Bibliography, references - compiling, checking
- 1.8 Class assignment
- 1.9 Exam
- 1.10 Teaching - preparation, gathering materials
- 1.11 Presentation
- 1.12 Grant, project proposal
- 1.13 Job search, application, interview
- 1.14 Review, assessment - of a book, proposal, application
- 1.15 Planning for some activity, work
- 1.16 Delegated work - doing it for somebody else (professor, colleague, friend...)

A.2 For **PERSONAL** reasons

A.2.1 Cognitive

- A.2.1.1 Learning something, confirming something
- 2.1.2 Staying current, catching up with an area, topic
- 2.1.3 Orienting oneself to the library, resources, services, equipment; learning how to use them

Derived TAXONOMY OF VALUE IN USING LIBRARY SERVICES

Exhibit 4.2 (cont'd.)

A.2.2	Emotive
A.2.2.1	Relaxing, pleasure, recreation, leisure
A.2.2.2	Reducing stress, worry
A.2.2.3	Feeling satisfaction, accomplishment
A.2.3	Substitute choice
A.2.3.1	Using this library service instead of other choices - other information resources, services people
A.3	To get an **OBJECT** or perform an **ACTIVITY**
A.3.1	Physical (tangible) objects
A.3.1.1	Getting a book, periodical, article, recording, image, film...
A.3.1.2	Using interlibrary loan to get an item
A.3.1.3	Using recall to get an item
A.3.2	Intangible objects
A.3.2.1	Obtaining information, facts, data; clarify something
A.3.2.2	Pointing to another source(s) of information within or outside the library
A.3.3	Perform an activity or work
A.3.3.1	Studying in the library
A.3.3.2	Viewing a film, listening to a recording
A.3.3.3	Searching electronic resources - catalogs, databases...
A.3.3.4	Searching print resources - catalogs, indexes, tables of contents...
A.3.3.5	Browsing
A.3.3.5	Copying
A.3.3.6	Use computers for non-library task (where available as a service)
A.3.3.7	Performing other non-library activities, work...

Derived TAXONOMY OF VALUE IN USING LIBRARY SERVICES

Exhibit 4.2 (cont'd.)

B. **INTERACTION** with a library service

B.1 **RESOURCES, SERVICES** - availability, accessibility

- B.1.1 Availability of desired item(s)
- 1.2 Completeness of given resource, service - degree of
- 1.3 Currency, timeliness - degree of
- 1.4 Accessibility to a given resource, service - degree of
- 1.5 Hassle, frustration in accessing the resource, service or in getting it - degree of

B.2 **USE** of resources, services

- B.2.1 Convenience in using the resource or service - degree of
- 2.2 Effort required in using it; ease of use - degree of
- 2.3 Frustration in using it - degree of
- 2.4 Effort, ease of getting from one resource or service to a complementary or subsequent one - degree of

B.3 **OPERATIONS AND ENVIRONMENT**

- B.3.1 Policies, procedures
  - B.3.1.1 Clear - degree of
  - 3.1.2 Conducive for ease, convenience, effectiveness of access, use - degree of
  - 3.1.3 Requirements upon users, fairness, reasonableness - degree of
- B.3.2 Facilities, organization
  - B.3.2.1 Space, - degree of adequacy
  - 3.2.2 Physical layout and organization - degree of quality
  - 3.2.3 Adequacy, quality of intellectual organization of resources, materials, services - degree of
  - 3.2.4 Comfort of facilities - degree of quality

Derived TAXONOMY OF VALUE IN USING LIBRARY SERVICES

Exhibit 4.2 (cont'd.)

B.3.3 Staff performance
- B.3.3.1 Knowledgeability, expertise - degree of
- 3.3.2 Helpfulness, empathy - degree of
- 3.3.3 Efficiency - degree of

B.3,4 Equipment performance
- B.3.4.1 Technical functioning - degree of quality
- 3.4.2 Availability and clearness of instructions, guides
- 3.4.3 User friendliness - degree of
- 3.4.4 Difficulty in operations - degree of

B.4 Possible **SUBSTITUTIONS** for given interactions and library service(s) that were used
- B.4.1 Use another service in the library
- 4.2 Go to another library
- 4.3 Use other facilities, services, resources outside of libraries; get the item through a department, company, society
- 4.4 Purchase the book, publication, recording...
- 4.5 Subscribe to a service, journal
- 4.6 Consult with a person - friend, professor, colleague...
- 4.7 Borrow the desired book, or other item from a person who has it
- 4.8 Use interlibrary loan
- 4.9 Do more work on one's own
- 4.10 Do nothing

Derived TAXONOMY OF VALUE IN USING LIBRARY SERVICES

Exhibit 4.2 (cont'd.)

C. **RESULTS** of using a library services

C.1 **COGNITIVE** results

C.1.1 Learning something, stretching knowledge
1.2 Reinforcing knowledge, reconceptualizing
1.3 Changing viewpoint, outlook, perspective
1.4 Getting ideas, perspective, conceptualization how to proceed
1.5 Serendipity - getting ideas about different, tangential things
1.6 Getting no new ideas; did not learn anything

C.2 **EMOTIVE** results

C.2.1 Sense of accomplishment - increase, decrease
2.2 Sense of failure - increase, decrease
2.3 Gaining confidence - degree of
2.4 Comfort, good feeling, happiness - increase, decrease
2.5 Frustration, stress - increase, decrease

C.3 **ACCOMPLISHMENTS** in relation to task(s)

3.1 Contribution to accomplishing or proceeding with task at hand; facilitation of or help with work - degree of
3.2 Fulfilling assignment - degree of
3.3 Providing access to people or other sources of information
3.4 Providing for a next step, next task, next information seeking activity - degree of

C.4 Meeting **EXPECTATIONS**

C.4.1 Getting, obtaining what needed, expected or requested - degree of
4.2 Getting too much
4.3 Getting nothing
4.4 Uncertainty about or confidence in what gotten - degree of
4.5 Exceeding expectations, getting additions to what expected - degree of
4.6 If not gotten what expected, degree of hurt; seeking of substitute actions

Derived TAXONOMY OF VALUE IN USING LIBRARY SERVICES

Exhibit 4.2 (cont'd.)

C.5 **TIME** aspects

- C.5.1 Saving time as a result of using the service - amount, comparison
- 5.2 Wasting, losing time in using the service - amount, comparison
- 5.3 Waiting time to access the service - amount
- 5.4 Quickness, speed of service
- 5.5 Time it takes to figure out or use the service - amount
- 5.6 Time available or allocated for use of the service - sufficiency

C.6 **MONEY** estimates

- C.6.1 Estimate of a dollar value of results obtained from a given service, or of information obtained
- 6.2 Estimate of a dollar value saved because of use of the service
- 6.3 Estimate of a dollar value spent in using the service, or the actual amount spent
- 6.4 Estimate of what may be spent on a substitute service or activities for similar results
- 6.5 Estimate of dollar value lost in cases where service was not available in the library or the use was not successful

4.6.2 Class B. Interaction

Class "Interaction" covers the assessment by users of qualities of various aspects of library services. How do the users assess or evaluate the encounters with the library in seeking and using a service? What else would they have done, if the service were not available? We have divided Interaction into four subclasses:

B.1 Resources, services: Covered are availability and accessibility of given items and services. Availability asks: Does the library have a given resource, item or service? Does it have a given book or journal and is it available for use on this occasion? Also included are: How current or timely is a given resource or service?

B.2 Use: Covered are aspects connected with use of a resource or service. Accessibility asks: what are the barriers to using it, in cost, time or inconvenience. How convenient is it to use the service? What effort is required or how easy is it to use? What is the degree of frustration? How much effort is required to get from one service to another (e.g. from searching for and finding references to getting articles)?

B.3 Operations and environment: Incorporates aspects related to the working and environment of the service vis-a-vis the user. Four subclasses are included:

B.3.1 Policies, procedures: How clear are they? How conducive are they for access and use? How reasonable and fair are the requirements?

B.3.2 Facilities, organization: What is the adequacy, quality of service's space, layout and facilities, and of intellectual organization of materials?

B.3.3 Staff performance: What is the knowledgeability of staff in the service? How helpful and efficient are they?

B.3.4 Equipment performance: How well does equipment function? Are instructions available and clear? How difficult it is to use? How user friendly is it?

B.4 Substitutions: Covered are indications by users of possible other services and lines of action, if the given service would have not been available. What would the users do to get a similar service or desired results? Go to other libraries, or information services? Consult people? Put efforts elsewhere? Do nothing?

4.6.3 Class C. Results

Class "Results" covers the outcomes of interactions with library services. What did the users get out of the service? What did they accomplish? Were their expectations met? How is the service related to time and money? We have divided Results in six subclasses:

C.1 Cognitive results: Relate to the state of knowledge of users: Did they learn something? Reinforce their knowledge? Change perspective? Get ideas on how to proceed? Any serendipity? Got no new ideas, learned nothing?

C.2 Affective or Emotive results: Relate to the state of users' emotions and feelings. Did they get a sense of accomplishment? Did they gain confidence? Were they feeling happy, frustrated?

C.3 Accomplishments: Relate to task at hand. What was the contribution to the task? Did it help the assignment? Was access to people or other information sources enabled? Did it help to continue seeking further information?

C.4 Expectations: Relate to meeting of expectations. Got what needed? Too much? Too little? Nothing? How much confidence in what gotten? If not gotten what expected, how much hurt?

C.5 Time: Relates to a number of aspects of time. How much time may have been saved as the result of service? How much time may have been wasted? What was the waiting time to get the service? Time needed to use or figure out the service? Was the allocated time sufficient?

C.6 Money: Relates to estimates of dollar values. What is the estimate of dollar value received from service? Dollars possibly saved? Dollars actually spent? How much might have been spent on a substitute service? How many dollars may have been lost, when the service was not available or not successful?

4.7 Encoding and overlap

In this section we elaborate on the rationale for instituting a scheme of classes, subclasses and categories, and the relations between them. This is of particular importance for encoding of users' responses and fitting them into given categories. Thus, this section can be considered also as a general part of coding instructions.

As mentioned, user answers can receive several codes, and conversely, the same code can be assigned to several answers.

Specific categories in subclass Tasks are not exclusive of those in Personal Reasons. Most of the time a distinction can be made by thinking of Tasks as being tangible and also represented in the outer world, while Personal Reasons are intangible and represented in the inner world of people, but categories from both may be applicable when users explain why they used a service. Similarly, categories in subclasses under Interaction (Resources, Use and Operations), may be simultaneously applied, as may those under Results. Furthermore, more than one category under Tasks (or any other subclass) may be used to classify user answers.

In probing for answers as to why the users use the library we found that the users often restrict themselves to the objects they want to get ("To get a book"), or an activity to perform ("Do a search"); they do not think to answer with the underlying reasons which drove them to get an object or do an activity, like "class assignment" or "paper writing." One has to probe to get to these underlying reasons - the users think of all of them as one, even though they evidently exist in layers. Similar examples can be given for a number of other questions. Users tend to bundle reasons, as they do interactions and results. This is the main reason for a lack of exclusiveness. As a practical matter, we substantially revised the question order between Wave 1 and Wave 1.2 in order to reduce the tendency for users to think in this way.

On the other side of the coin, the action verb "to get", and its synonyms span classes of the DT. Categories related to "get" appear in two classes, Reasons and Results, but with significant distinction. Under Reasons, and subclass To Get an Object or Perform an Activity, there is an intention: "Why did you use the library today?" "To get a book." Under Results, and Accomplishments, there is an outcome: "What did you get out of using the library today?" "I got a book." Although in this case the answers to both questions are similar, they are distinct: the first refers to a reason for using the service and an intended action, while the second one refers to a result and an accomplished action. Often, they follow each other, but at times "To get a book" is not followed by "I got a book." The answers are not symmetrical. We found that Reasons and Results are at times difficult to distinguish while encoding, thus, in instructions for encoding (Appendix B) special attention was given to describing these distinctions in detail.

4.8 Statistics and testing

Analysis of the Coding of the Open-ended Responses under the Empirical Taxonomy.

Analysis of the open-ended responses was an iterative process which involved a great deal of informal adjustment and communication among the coders. Lacking comprehensive coding support software, we can best summarize the process through a qualitative discussion of the coding responses shown in the following tables. In most of these tables we show only those responses that occurred in more than 10% of the cases.

Each response text was coded according to one of six coding category schemes that had been developed. Some of the earlier schemes were later dropped and were not used in coding data gathered in the second wave of the survey. We allowed up to three codes to be assigned to a particular response text. Therefore, the codes are analyzed using a multiple response capability supported by the SPSS program. We summarize the results of that analysis here. Full detailed tables of results are given in Appendix C. Note that while some schemes were applied to questions in every instrument, others had more limited application, resulting in a smaller number of valid cases.

In the table below, the column headed "Code" contains the numerical code used to represent the classification in the Empirical Taxnomy. The translation table is given in Appendix B. The total number of questionnaires on which such a response was coded is given in the column headed "Count". This number is shown as a fraction of all the responses coded in the next column. It is shown as a fraction of all the questionnaires in the last column.

Since the same code may be assigned more than once to one questionnaire, the last column sums to more than 100%.

```
Group $CHOOSE  Coded on Choose  ("Why did you choose that grade for the
library?")
                                                       Pct of  Pct of
Category label                        Code     Count  Responses  Cases
                                 Total responses   109    100.0    143.4
                                                 -------  -----    -----
Got everything I wanted                 51        22     20.2     28.9
Save time                               21        14     12.8     18.4
Helpful finding                         12        13     11.9     17.1
Could have been more                    53        11     10.1     14.5
Got most                                52        10      9.2     13.2
More easy, convenient                   24        10      9.2     13.2

452 missing cases;  76 valid cases
```

For example, for the category called "Choose", coded according to the detailed scheme given in Appendix B, there are an average of 1.43 codes assigned per case. The actual number of responses given is shown in the column headed "count", and the table has been sorted in decreasing order of that count. However, we will focus our attention on the last column of the table which shows the percentage of all cases coded in which a particular response was given. For example, the response "got everything I wanted" occurred in 22 cases, out of total of 76, representing 20.2% of all the (109) responses, but representing 28.9% of all the cases coded. In other words, nearly 1/3 of the responses coded according to this scheme included the concept that the patron got everything that he or she wanted.

The next ranking score has to do with saving time. This occurred in 18.4% of the cases. Ranked very close to it is that the library and its staff were helpful in finding the needed information. The fourth ranked score is one which generally appeared in explanation of a negative or low score assigned to the library, and it is that the library or the service could have been more effective. Nearly tied with this are two responses which address the acquisition of information. The first, at 13.2% is an indication that the patron got most of what was needed, while the second, equally frequent, was an indication that the process was somehow easy or convenient.

No other response (details are given in appendix C) scored above 7% of the cases.

The table below shows 242 cases that were scored according to the code group describing what the patron would have done if the service had not been available at the present library, or what the patron is going to do because the service has not been available.

```
Group $DONE  Coded What Would Have Done (".. if you had not gotten what you
needed?")

                                                           Pct of  Pct of
Category label                            Code     Count  Responses  Cases
                                 Total responses     317    100.0    131.0
                                                 -------    -----    -----
Another library                              4        44     13.9     18.2
Another university                          42        38     12.0     15.7
Another place                                5        25      7.9     10.3
A public library                            41        21      6.6      8.7
Interlibrary loan or recall                 31        19      6.0      7.9
Card catalog                                26        19      6.0      7.9
Buy items                                  511        18      5.7      7.4

286 missing cases;  242 valid cases
```

In this case we extend the response threshold down to 7% of the responses in order to cover some that are of importance to library practice although they did not occur as frequently as we might have expected. The first four categories (covering 18.2, 15.7, 10.3, and 8.7% of the responses) indicate looking in another place, which is likely to be library, either named as a library, described as being a university, or simply described as being another place. Note that these scores can not be summed because of the multiple response feature. In other words, we don't know the total number of cases in which one of these four responses appeared. Only after these four leading activities do we come to the 7.9% of the cases in which the patron is going to make use of usual library services. The frequency is the same for use of interlibrary loan or recall and for further use of the card catalog. Next after this, occurring in slightly more than 7% of the cases is an indication that the patron would have to buy the book.

It appears then that either because of press of time or for lack of promotion of the service, two of the library's most important tools for serving patrons who are frustrated in their original search are no more prominent in the patron's thinking and planning than is the presumably dire alternative of buying an item.

There were 185 cases coded by a set of concepts describing how the patron's goal or task or project would have been hurt by failure to obtain the information. See the table below.

```
Group $HURT  Coded by how it would hurt (".. your project if you did not get
what you sought?")

                                                           Pct of  Pct of
Category label                            Code     Count  Responses  Cases
                                 Total responses     230    100.0    124.3
                                                 -------    -----    -----
Not able to complete                        10        66     28.7     35.7
Taken more time                             50        53     23.0     28.6
Gotten less information                     31        26     11.3     14.1
Other information source                    34        20      8.7     10.8
343 missing cases;  185 valid cases
```

Heading the list is the statement that it would have been impossible to complete the project, which was reported by more than 1/3 of the patrons. This is a clear indication of the application aspect of the patron's conceptualization of the library service. The second category "taken more time" occurs in more than 1/4 of the cases and clearly refers to the acquisition process. The third and fourth categories ("gotten less information" and "other information source") clearly expose the conceptual aspects of the patron's use of the library.

Thus, the four leading concepts appearing in the patrons' explanations of how they would have been hurt correspond more clearly than the codings given before to our broad conceptual scheme of acquisition, cognition, and application.

There were 174 cases coded according to the reason that some particular score had been assigned. The top four categories express aspects of the patron's conception of the reliability and the value of the service. Note that it is not apparent from an examination of the questions that this dimension of the perception of service would have been probed. However, we find, in 17.8% of the cases, confidence in the service, and in 16.7% of the cases (overlap not determined) the statement that the patron had used the service in the past. Then, presumably accounting for negative or low scores, are the concepts of "incomplete", "not comprehensive", or "not useful". Finally, the category of generally "helpful" occurs in just below 10% of the responses.

```
Group $REASON  Coded according to reason ("... for giving that score".)
                                                        Pct of  Pct of
Category label                          Code    Count  Responses  Cases
                                  Total responses   220    100.0   126.4
                                                 -------    -----   -----
Confident in service                      42       31     14.1    17.8
Used the service in the past              43       29     13.2    16.7
Not complete,comprehensive,useful         40       22     10.0    12.6
Helpful                                   32       17      7.7     9.8

354 missing cases;  174 valid cases
```

There were 182 case of responses coded according to the way in which the library service helped the patron's task or project. These, as might be expected, cover a variety of aspects of the cognitive dimension. For example, the leading category is that the service provided information or references. This is, of course, also related to the acquisition component, but the appearance of the word information suggests that the patron is already directed towards the cognitive aspects of the interaction. "Helped me start", occurring in 14.8% of the cases, has to do with the application process, so also does "complete or help my work". The fourth listed category, occurring in 12.1% of the cases was very interesting because it is clearly cognitive and represents the notion that the service provides "ideas, insight, or perspective".

```
Group $WAY  Coded according to way (".. that the library helped you".)
                                                        Pct of  Pct of
Category label                          Code    Count  Responses  Cases
                                  Total responses   203    100.0   111.5
                                                 -------    -----   -----
Information/references                    24       58     28.6    31.9
Helped me start                           14       27     13.3    14.8
Complete or help my work                  23       23     11.3    12.6
Ideas, insight, perspective               22       22     10.8    12.1

346 missing cases;  182 valid cases
```

We turn finally to the most extensively applied group of coding responses, which were coded according to what the patron "got out" of the service. These codes were also applied to questions having to do with the value or benefit of the service. In this case, it is very gratifying to see that the three leading categories correspond to our three broad conceptual categories. Getting a physical object was cited in 86.9% of the cases. Obtaining information or knowledge was cited in 77.1% of the cases, and "for a paper" was cited in 72.5% of the cases.

Looking at the top three reasons reported we see here clearly the extreme importance of the acquisition, cognition, and application aspects. That is "get physical object" is acquisition, "get information or knowledge" is clearly cognition, and "for a paper" is clearly application. Interestingly, however, application may play a much higher role in people's thinking because the next several categories, "work", "orientation", "task completion", "for research", and "for a class" all clearly relate to the application aspect. At 31.8% we find "saving time" and just below it "convenience and efficiency", which probably refer to qualitative characteristics of the acquisition process. The next two categories were used to code negative experiences, neither occurring very frequently. However, 20% of the responses included some statement that information or resources were not available, and 22.5% indicated that in some way the service did not fulfill the immediate goals.

```
Group $GETOUT  Coded by What you Getout ("... of using the service.")

                                                         Pct of  Pct of
Category label                          Code     Count  Responses  Cases
                                  Total responses  3497    100.0    662.3
                                                 -------   -----    -----
Get physical Object                        31       459     13.1     86.9
Information, knowledge                     32       407     11.6     77.1
For a paper                                52       383     11.0     72.5
Work                                        2       271      7.7     51.3
Orient                                      1       265      7.6     50.2
Task completed                             36       212      6.1     40.2
For research                               51       192      5.5     36.4
For a class                                56       174      5.0     33.0
Save time                                  33       168      4.8     31.8
Convenience, efficiency                    34       146      4.2     27.7
Didn't fulfill goal                        44       119      3.4     22.5
Not available                              41       110      3.1     20.8
Positive (People were nice)               941        53      1.5     10.0

0 missing cases;  528 valid cases
```

Last in the group of responses occurring more than 10% of the time is the simple statement that the experience was positive because the people at the library were nice. As an aside we note that this suggests that alarming indications in literature that simply behaving nicely will completely distort patron's perception of the quality of service are perhaps unfounded. Only 10% of the cases cite this kind of reason, after an overwhelmingly more frequent appearance of reasons having to do with acquisition, cognition, and application.

4.9 Theoretical derivations

While theory is not a primary focus of this work, our observations lead to some theoretical implications. We believe that the general structure of the taxonomy (Exhibit 4.1) may also serve as a model of values in use of library and information services in general. That is, these are the classes of variables that enter into assessments of value. We now comment about three elements that may have to be incorporated in a general theory of value-in-use, or any more specific theory of values in using library and information services.

The first element relates to layers or levels. It seems that users consider values in a progression from a surface level that deals with immediate objects and activities, to deeper levels that deal with motivations - accomplishment of tasks, emotive reasons and the like. At times, the different levels are intertwined, but at other times one level may be singled out to dominate in an assessment of value.

The second element relates to stages in the process whose value is assessed. It seems that assessment of value by users proceeds through several stages. We can distinguish at least three stages, and at each stage a different set of values may be applied. To illustrate: "Getting a book" is an immediate result, which may after a time become "learned something" - a time during which a user read and absorbed, understood and/or assimilated what is in the book. In cases where users have to perform a task or resolve a problem ("complete a report") there is a further, stage, also reached after a passage of time . "Getting a book" may be characterized as the first or acquisition stage; "learning something" as the second or cognitive stage; and "completing a report" as the third or application stage.

At different stages, users may refer to a different scale of valuation. Thus, different expressions of value may be separated by time periods or stages. While our taxonomy did not follow such a model, the stage value assessments are still present. We have incorporated the value assessments of the first or acquisition stage under categories associated with Interaction, and the second (cognitive) and third (application) stage under Results.

The third element relates to exchanges. Value, particularly in economics, is often represented in terms of exchange of an object or service for and some tangible economic medium of exchange such as money or time. As discussed earlier, time, rather than money, was found to be the most effective dimension for assessing value. As have others, we found that users have great difficulty in assigning monetary value to library and information services. But they refer easily and often to time ("saved me time", "loss of time"...).

Various aspects of time may be the strongest indicator of exchange value for library and information services, and this should be reflected in associated models and theories. In our taxonomy, we have chosen Time as a major characteristic of value, standing as a subcategory of its own. We also included Money, because some users refer to money when talking about the value of service.

5 COMBINING COST AND VALUE DATA

5.1 Impact Data

Given the negative results of our efforts at scale development, we have explored the potential of combining two measures in a non-standard way. In particular, we have information on the assigned dollar value of the service, on the length of time spent using the service, and on the question "was the value worth the time?". We first explored the dollar value by itself. The distribution of this variable shows peaks at convenient numbers, and is highly skewed, with a concentration at very low values, and a high mean, influenced by a few outliers. We trimmed the variable by assuming that estimates in the range of $4,000 to $5,000 could be economically realistic, but that estimates of $50,000 could not be. We then explored the variation of the mean of the dollar value with the type of service. No statistically significant variation was found.

As mentioned above, none of the scale variables yielded significant dependence on the service type. Similarly, analysis of the time spent yielded no significant dependence. We transformed the time spent to a logarithmic scale (based on natural logarithms), using a variable LogTime. This also did not show any significant variation with the service. However, the time spent by users at a library does represent some kind of an economic decision, and we sought to weight this new variable using the information about the relation between the benefit and the time.

To do this we defined a composite variable:

$$\text{WtLogTime} = \text{LogTime} * (B-1)/6.$$

Here B is the scale value reported for "is the benefit worth the time". The highest value of B is 7, in which case the new weighted variable has the same value as the logarithm of the time spent. But for the lowest value of B ($B=1$), this weighted variable vanishes. Since the Time spent using the service is always greater than 1 minute, this new variable is thus either positive or zero.

Analysis of variance revealed that this new variable is just barely able to resolve differences among the services. Specifically, the data let us reject the hypothesis that it has the same mean value for all the services. But further analysis (called "post-hoc" analysis) reveals that only the highest of the values found for the mean of the weighted logarithm of the time is significantly different from some of the other values. And, at that, it is significantly different only from the four lowest values.

Thus the measure WtLogTime which is used in the remainder of this discussion is only a very weak discriminator of the value of the services. Nonetheless, it represents the best that we have been able to extract from the available data, and will serve to illustrate the concepts of Data Envelopment Analysis.

5.2 Combining Cost and Impact Data

To illustrate how one can address both cost and value simultaneously we assemble here the data on the weighted log-time value measure, and the cost data, drawn from Chapter 2. In order to produce a usable graphical representation we also represent the cost on a logarithmic scale, by calculating LogCost.

Table 5.1. Weighted Logarithm of the Time Spent Using the Service combined with cost per unit of service. The services are defined in more detail in Table 1.2. *(D=Materials Delivery. C=Catalog or online service. R=Reference Service. V=Reserve Collection. L=Entire Collection. X=Other service.)*

Code	Mean	StdDev	N	Cost	LogCost
C1	1.4089	1.1017	24	0.70	-0.34
C2	1.8783	1.0654	30	0.70	-0.34
R1	1.4113	0.7576	47	1.16	0.15
D1	1.1145	0.8669	52	1.88	0.63
R2	1.8642	0.9791	47	2.00	0.69
V1	1.3795	1.3662	26	2.65	0.98
V2	2.1946	1.5481	7	2.65	0.98
L1	1.5764	1.1947	49	6.12	1.81
R3	1.289	1.3758	48	6.87	1.93
R4	1.0997	0.6624	23	8.18	2.10
V3	1.3712	1.0751	7	8.59	2.15
V4	1.1797	0.8765	28	8.59	2.15
X1	1.3037	0.9727	14	2.30	2.51
L2	1.454	1.3965	17	4.62	2.68
R5	0.8463	0.5615	10	18.35	2.91
R6	1.4841	1.094	41	20.35	2.93
R7	0.9672	1.3678	2	18.80	2.93
R8	1.784	1.6408	7	33.36	3.51
R9	1.8322	1.1015	25	35.52	3.57
D2	1.4433	1.0171	10	36.13	3.59

One of the services could not be independently costed, and was assigned the cost of "0", which cannot be transformed onto a logarithmic scale. Note also that when the unit of cost is taken to be the dollar, values less than $1.00 are represented by negative values of the logarithm of the cost. This does not represent a negative cost, but is just a reflection of the arbitrary unit of currency.

5.3 The Principles of Data Envelopment Analysis (DEA)

In data envelopment analysis (Ahn et al, Banker et al, Charnes et al, Seiford) service units, or functions, are represented by points on a graph such as the one shown in Figure 5.1. One axis represents the cost of the service, and the other represents the impact. Such an array of data would conventionally be analyzed by some type of regression analysis. What that does is produce the "average line". For data such as shown here the average line does not tell us very much, as the individual services are widely scattered.

Under data envelopment analysis we concentrate on the boundary defined by these points. In this case it is the line determined by the two left-most points, labelled C1 and C2, and the highest point, labelled V2. These represent, among them, the three services which cannot be beaten. All other services have either higher unit costs, or lower impact (as

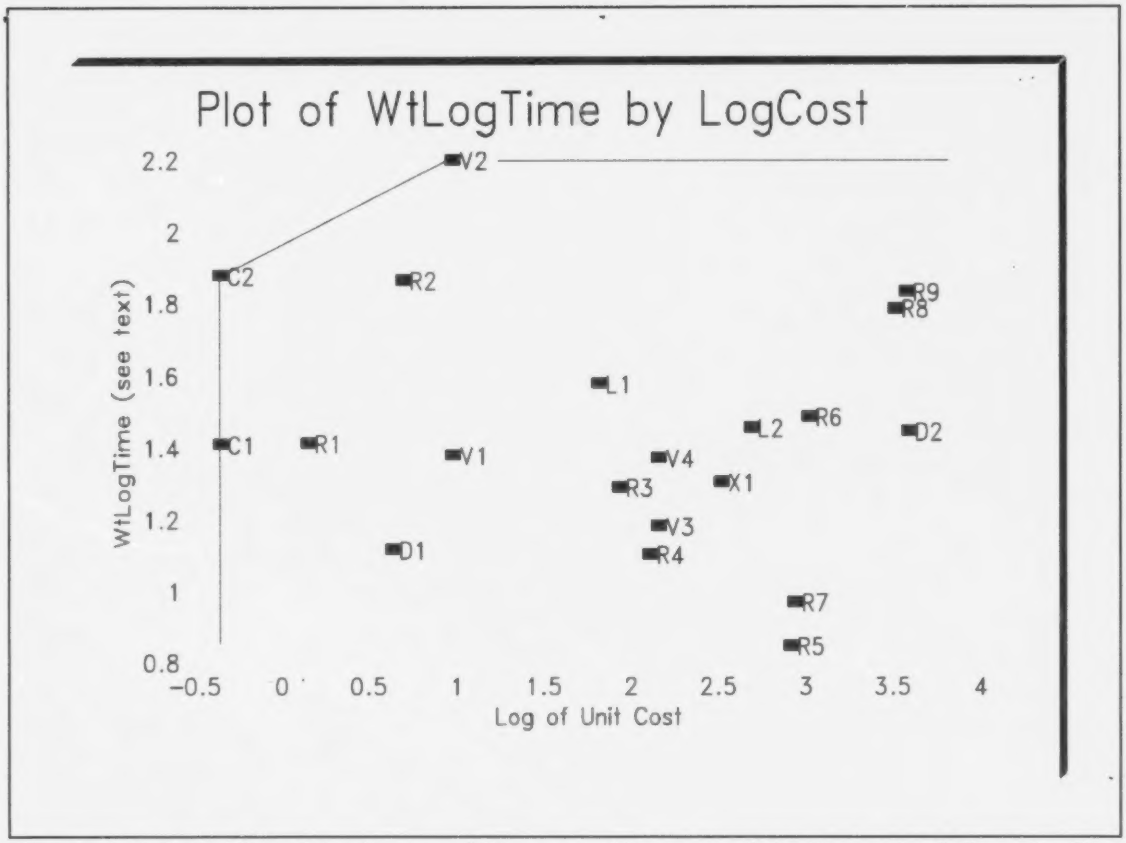

***Figure 1**. A Joint Plot of the Presumed Measure of Impact and the Determined Cost of a Unit of Service. Points closer to the upper left hand corner represent greater impact for the money spent on the service.*

measured by our surrogate) or both. In a sense this is a two-dimensional variant of the familiar notion of "benchmarking" which seeks to identify best practice for any particular service or function. Since different services are being considered together, the benchmark cannot be reduced to a single number, but must consider the cost and the impact separately. If we were confident in the validity of our measure we could in fact proceed to calculate the degree to which each other service is less than optimal. In the present, exploratory situation, such a display of analytical prowess would be unjustified.

We note a few interesting features of the DEA plot. First, the catalog services are clearly least expensive. This is expected, particularly as we have not included the costs of developing the database to which it provides access. The catalog appear twice with the higher impact value (C2) being reported by users who were interviewed by phone. Thus it has a greater positive impact for those who use it from remote sites than for those who use it at the library (C1). This suggests that either it is used longer, or that the user adjusts the estimate of benefit to compensate for the effort required to go to the library. The reserve room services "V" have costs in the middle range, and impacts ranging from the highest to among the lowest. In fact, V1 and V2 correspond respectively to student and faculty estimates for the same service. So do V3 and V4. Thus, in each case, the impact measure assigned by faculty exceeds that assigned by students. This suggests that the benefit, to the faculty, of the reserve services is greater than the benefit to the students on a single visit. We must also note that faculty members typically have a single long interaction with the reserve room, and we have not separately costed the fulfillment of that interaction. Of course, this must be balanced against the fact that students probably use the reserve collection several times during a semester.

The document delivery services "D" are not accorded a high impact and show substantial cost variation. However, this low impact is a reminder of the fact that we have not isolated impact with the clarity that we would like. Patrons were asked "how long they spent using the service". Thus, while it may take only a few minutes to request and receive a document, it may take hours to peruse that document and put it to some use. We return to this issue in Chapter 6.

In the middle of the pack we find two situations in which a collection of some type was assessed as a whole: "L". Finally, there were several reference services at several of the libraries, and these, represented by "R" are scattered over the whole range of the DEA plot. Thus there is clearly a great deal more to be learned about how to measure the impact, and about whether (and if so, why) the cost of achieving an impact varies so widely from one service to another.

6 DIRECTIONS FOR FURTHER STUDY AND APPLICATION.

6.1 Development of Scales and Measures of Value

6.1.1 Applying the New Taxonomy

Developing the codes for the open-ended responses was a complex iterative process. For example, we discovered that when respondents are discussing a number of different issues, they return to the same conceptual aspect of their use of the library. Thus, codes having to do with the reason for using the library come up when they are telling whether the results were helpful and even when they are discussing other ways in which they might get the needed information.

Consequently, we made some major changes during the development of the coding scheme, so that a different scheme was used to code the responses to the question "What would you have done" after the first set of data had been analyzed. As described in Chapter 4, we believe that it will be most useful to reorganize the extended set of codes (which are detailed in Appendix B) in terms of a conceptually structured taxonomy. At the present time, the mapping between codes and taxonomy is multivalued. That is, for each level in the taxonomy there are several corresponding codes, and several of the codes appear in conjunction with more than one of the items in the taxonomy.

While we could, in principle, move directly to the new taxonomy by simply assigning a large number of codes as appropriate, we believe that the most productive path towards future research will be to completely recode these open-ended questions in terms of the new taxonomy, and to develop concise coding rules which support that. However, we see this as scholarly work falling outside the scope of the present project, and which will be undertaken at Rutgers as time permits.

6.1.2 Calibrating individual coding labels

We have developed a mathematical formalism which will make it possible to assess inter-judge consistency at the level of the individual label assigned. We believe that this will improve our ability to refine the taxonomy, by identifying those labels which prove difficult to assign consistently.

6.1.3 Gathering better scale information

As mentioned earlier, we have found that the lack of a more general context makes it difficult to differentiate the impact of several services with an instrument of this type. We speculate here on techniques that might be used to enhance the differentiating ability.

One technique would be an extension of the critical incident method, in which respondents are asked to recall another recent use of the library and compare it with the present use of the library. This is, in a sense, an extension of conjoint analysis to the entirety of the library use event. It might prove possible to develop comparative measures of the impact of specific services by studying the frequency with which one service was judged to have a greater impact than another. However, at the present this technique is speculative and might yield disappointing results.

The second, rather more promising direction for extension is to consider the acquisition aspect of our conceptual triad. With regard to this, it should prove possible to frame a question such as "How long has it been between the moment when you first realized that you needed particular information for your project and the moment when you were able to get it from the library?". If this proves to be determinable by interview, it will help to distinguish various services, particularly those which are accessible online. However, like our earlier suggestion, this is still speculative and remains to be demonstrated in extended studies.

6.2 Suggestions for application

Suggestions for applications of this taxonomy to specific library services, or for experimentation, are embedded within the text, and will not be repeated. Section 4.3 suggests general approaches and methodologies from other fields that are applicable for applications in assessment of values of library services. Section 4.4 provides an outline of specific methodologies to be followed in development of similar taxonomies, together with suggestions for applications and generalizability of those methodologies. Section 4.5 presents a number of attributes of the taxonomy that should be a major consideration in any application. Section 4.7 presents elements and problems encountered in encoding, and these should enter in development of instructions in any application. Section 4.8 describes methods and results used in testing of the taxonomy - these can be used in any applications where our taxonomy is adjusted or a new one developed. Finally, Appendix B provides instruction used in this project for encoding using version 1 of the taxonomy.

A given library can take the taxonomy developed here and the approaches used to undertake a study of its own. In such a case a generic six-stage process is recommended.

1. Setting of objectives: Deciding what service(s) to study, what is the goal of the study, i.e. what should the study encompass, and why the study is carried out, i.e. what should the results be used for. Among others, results could be used for changes in services, marketing, justification, institution of additional services, design decisions, testing of services etc.

2. Specifying methodologies: Develop specific methods to be used in the study. Includes: making adjustments, if any, to the taxonomy to fit specific situation and objectives; specifying specific procedures for collection and analysis of data; developing and testing of instruments; writing of manuals and instructions to carry out the procedures by different people; selecting samples, times, and places; and determining other application matters specific to the library and objectives.

3. Allocating resources: Providing necessary financial, technical and human resources. Includes: establishing a budget; selecting professional and support personnel; training of personnel, particularly in relation to interviewing and encoding; establishing technical support, e.g. needed hardware and software; establishing a time, task and people schedule, and if necessary critical paths; and determining other needed resources specific to the library and objectives.

4. Data collection: Carrying out data collection procedures, according to established methodology. Testing them beforehand.

5. Data analysis: Providing for a variety of analyses to fit the objectives. Data may lend itself to further analyses not envisioned at the outset. Both quantitative and qualitative analyses are applicable.

6. Deriving conclusions: Interpret the meaning of data; connecting conclusions to objectives; extending interpretations and conclusions to pragmatic suggestions and recommendations; writing a report; presentations to management and various audiences.

The detailed history of this project, Part 2 of this report, and the more concise Manual for replicating the study, Part 3 of this report will be helpful in following this general outline. In addition, the specific questions and coding schemes given in Appendices A-C will serve as a guide. However, we must warn potential adopters of these instruments that the process of developing the codes is time-consuming.

A study of value of library services is a complex undertaking, and requires allocation of significant resources. It requires considerable thought and a team effort. Most of all, it requires a commitment to cooperate by both, management and staff. Such a study may be perceived by some of the staff or management as a personal threat. It is not, and it should not be. The study design must include highly visible safeguards to ensure that it is not used to "assess individuals". The study has to be carefully and repeatedly explained to all concerned. At most institutions, informed consent must be obtained from users who are interviewed.

Libraries today face a number of problems and challenges: reduction or stagnation in financial resources; increase in competition from other information services, including local computer departments and local, national and international networks; strategic positioning vis-vis such services; application of new technologies and incorporation of electronic resources; provision of remote services "without walls"; challenges in responses to R&D in digital libraries and information infrastructure; and political struggles with internal services competing for limited resources.

In the final analysis, people use libraries because they find value in them. In the past such value was considered as self-evident and widely understood and accepted. But changing times and new challenges require that libraries go beyond that in documenting their value to users. Study designs such as this one will help libraries to document the value that people find in libraries and express it in specific data that can be used to manage effectively in the face of these challenges.

6.3 Conclusions

We may sum up the results of our study by saying that it is definitely possible to obtain and classify user responses. In addition, it proves exceedingly difficult to untangle the three conceptual aspects: acquisition, cognition, and application in brief interview studies of library users. Correspondingly, it has proved difficult to obtain scale-based assessments which relate the present instance of library use to the general use of other library services, and to the goals and value of the project which causes that library use.

However, the present study has shown that it is definitely possible to develop a uniform instrument suitable for use at a variety of institutions to study a variety of services. We have also shown that it is possible to develop reasonably accurate unit cost estimates for diverse functions, in a way that does not require the library to develop a complete program budget.

Finally, we have demonstrated how the techniques of Data Envelopment Analysis can, in principle, be applied to the study of the relation between library functional costs and the impact of the library services or functions.

7 ACKNOWLEDGEMENTS

This project would not have been possible without the cooperation of several colleagues in the project. Joann D'Esposito-Wachtmann served as Project Manager, supervising as many as 18 simultaneous interview studies in four geographic locations. In addition, she supervised the contracting of transcription and data entry services, and played a large role in the definition and testing of the successive instruments. She authored the second and third parts of this report, whose contents are indexed at the end of this document.

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Cost and Beneficial Impacts of Library Services

Part 2: Detailed History of Project Management and Processes

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2 INTRODUCTION

To measure the benefits of library services, we conducted a three-phase interview-based study in five university research libraries. The sample focused on faculty members and graduate students in that order of priority but, numerically, graduate students were more highly represented than faculty.

The preliminary qualitative phase explored, in a focus group setting, the vocabulary used to describe perceptions of library benefits. We assembled two focus groups: one consisting of faculty users of the libraries and one with graduate students. Results were incorporated into the later two quantitative phases.

In the later two phases, called Wave I and Wave II, we sought a quantitative picture of the perceived measures of library benefits. Wave I concentrated upon those impacts which can be perceived and articulated by library users as soon as they have finished receiving the library service. Wave II explored the longer term impact of the information gained and its relation to the missions of the individual and of the institution as a whole.

The interviews were conducted by telephone or in-person, as appropriate to the nature of the service.

3 PRELIMINARY STUDIES AND WAVES 1.1 and 1.2

3.1 Schedule of Wave 1

We established an approximate schedule for Wave I as follows:

9/7-30/93	Recruit Interviewers/Libraries Select Services
10/1-30/93	Conduct Focus Groups/Develop Questionnaire
11/1-13/93	Pretest Questionnaire/Train Interviewers
11/15-19/93	Interview-Week 1
11/29-12/11/93	Interview-Weeks 2-3*

*We skipped Thanksgiving week.

Overall, wMwwere able to keep to the schedule with one exception. The fifth institution, Library 5 (L5), was recruited later than Libraries 1-4 (L1 - L4) and thereafter, interviews at that institution took place later than at the others (2/21/94-3/11/94).

Data collection was managed directly from the APLab or with the participation of a library school faculty member who managed the study under our guidance.

3.2 The Libraries and the Services Studied

3.2.1 Service Selection

We asked each library to select three specific services to study, using these suggested guidelines:

A) A reference service in which the user is helped by a human member of the library staff in order to get the necessary information;

B) An access service in which the user proceeds through online catalogs and other finding tools to locate the materials that are needed;

C) A specialized subcollection; or

D) Some other service that would be useful or helpful to the particular library.
Their selections are presented below.

3.2.2 LIBRARY 1 - (L1)

3.2.2.1 Service 1

As its first selection, L1 chose the three-tiered Reference Service and requested that we study each of the tiers individually as follows:

The Information Desk

This is the first "tier" of the Reference Service. At a desk situated near the library entrance, a library staff member addresses "simple" reference questions.

The Reference Desk

This is the second tier of the Reference Service; the user asks the reference librarian a question at the reference desk and the reference librarian responds to the query at that time. L1 requested we study this service at two different library units.

Reference Consultation Service

This third tier supports users who want extensive reference assistance. The users complete request forms and arrange appointments with a reference librarian, who provides an in-depth consultation.

3.2.2.2 Service 2

- As its second selection, L1 chose a Materials Delivery Service (MDS) through which users can have items from one of the campus libraries delivered to whichever other library site is most convenient for them. Users request items either by filling out a request form at the circulation desk of the library to which they would like the items delivered or by submitting the request electronically through the campus-wide INFO Service. L1 requested we study both types of users. This service was chosen, in part, in order to include university libraries on all of the three university campuses (which are located in different cities).

3.2.2.3 Service 3

For its third service, L1 chose Bibliographic Instruction (BI) in which university professors bring their classes to the library for orientation and training. L1 wanted to evaluate the benefit of BI by comparing perceptions of those students who have participated in it with those who have not.

3.2.3 LIBRARY 2 - (L2)

L2 responded to our request for service selection by focusing upon three of its smaller libraries: Art and Archeology, Biology, and Psychology, and selecting a service provided by each one.

3.2.3.1 Service 1 Art and Archeology Library

This library contains a non-circulating collection and L2 chose to study use of the collection itself.

3.2.3.2 Service 2 Biology Library

In this library, L2 chose to focus upon use of the electronic reference services including MEDLINE, Science Citation Index, Current Contents, Carl UNCOVER, the online catalog, LEXIS/NEXIS, the Internet, Biological, Abstracts, etc.

3.2.3.3 Service 3 Psychology Library

In this library, L2 selected the traditional in-person Reference Service.

3.2.4 LIBRARY 3 - (L3)

3.2.4.1 Service 1

For its first service, L3 selected the enhanced online catalog. In addition to general library information and hours, and an electronic encyclopedia, this also contains the law library catalog, periodical indexes, catalogs from other libraries in the surrounding area and national bibliographic databases. L3 requested we interview both on-site users and remote users of this service.

3.2.4.2 Service 2

For its second service, L3 selected the undergraduate Reserve Service. (Although our focus was on faculty and graduate students, we made an exception for this service on the grounds that it is a service to faculty, and to their educational mission). Professors place course materials on reserve and students may borrow them and use them within the library for up to two hours. After 3:00 p.m., the materials may be borrowed until 10 a.m. the following day. L3 requested we study both the faculty who had placed items on reserve and the students who use the service.

3.2.4.3 Service 3

For its third selection, L3 chose two types of services provided by the science libraries. The first is the Document Delivery Service at the Biology Library. Users submit requests for document delivery at the circulation desk; the librarians fill the requests; and users either retrieve the documents personally or have them sent by mail.

The second type of service is a pilot Carl UNCOVER project in which the science faculty members are given their own Carl UNCOVER account to order documents as they deemed appropriate, rather than having to go through the librarian.

3.2.5 LIBRARY 4 - (L4)

3.2.5.1 Service 1

For its first service, L4 chose the Electronic Reference Resources. L4's library is a multi-story building with reference areas on three floors. Each provides different electronic sources, depending upon the subject matter housed there. L4 requested that we study users on all three floors.

3.2.5.2 Service 2

L4's second service is a Music and Media Center which functions similarly to a Reserve Service. Instructors place material on reserve, users come to listen to, or watch, tapes. Video users are assigned a carrel and the film is controlled from behind the counter. Music cassettes are handed to the user and may be borrowed for a specified period of time. Users are not permitted to remove materials from the Center. An exception is made for instructors who may borrow an item for classroom use and then return it. L4 requested we study both faculty who had placed items on reserve and on-site users.

3.2.5.3 Service 3

For its third service, L4 selected the Interlibrary Loan Service by which library users are able to request books or articles from other libraries by submitting a request to the librarian. Users may retrieve materials personally at the library or have them mailed.

3.2.6 Library 5[1] - (L5)

3.2.6.1 Service 1

For its first service, L5 chose the Automated Reference Service. In the library, the Automated Reference Service work stations are divided into two areas with LEXIS/NEXIS in one section and the others (ERIC, Psych Lit, Dow Jones, etc.) in another. L5 suggested we study both areas.

3.2.6.2 Service 2

L5's second selection was the traditional Reference Service.

3.2.6.3 Service 3

L5's third selection was the Patents Service, a patent depository where individuals may research an item/idea to determine whether it has already been patented. After searching at a work station the user gives the relevant patent number to the librarian who then gives the user a fiche with the patent. If the user already knows the patent number, the first step is eliminated.

---

[1] *For Wave I, this institution was studied separately from the other 4, with some modifications to the instrument.*

3.3 Quotas and Response Rates: Wave I

3.3.1 Site Visits

Early in the project, we conducted site visits to each library to obtain information about the feasibility of studying the services and to meet with librarians who would be "hosting" the interviewers. During those visits we observed users of the service, discussed the best positioning for the interviewers and determined the best hours for interviewing using an Impact Study Feasibility Report as a guide. (See Appendix F). At L5, the on-site project manager conducted the visits and reported her findings to us.

Each interviewer was later given a set of Special Instructions for the particular service(s) (See Appendix F) based upon our findings during these visits.

3.3.2 Establishing Quotas

Prior to the onset of the study, we set approximate quotas for the number completed interviews for each service at each library. These quotas were based upon an overall goal of 500 interviews: 100 per library evenly divided among the three services. (see Table 1). For budgeting purposes, we projected one completed interview per hour of interviewer time.

3.3.3 Study Outcome: Response Rates

Overall, in terms of interviews per hour, Wave I interviewing went slightly better than projected: 1.11 completed interviews per hour. Of all the in-person contacts, 26 percent resulted in completed interviews. About half (49%) of those contacted were ineligible (primarily because they were undergraduates) and about one-half of the remainder (23%) declined to be interviewed. Three percent of the interviews were terminated while in progress. The average number of completions per hour of interviewer time, for in-person interviews was .95.

The telephone interviews averaged 2.15 completed interviews per hour of interviewer time. Of all the telephone contacts (including answering machine responses, unavailable respondents and "no answers/busy signals), 24 percent resulted in completed interviews.

Table 2 provides an overview of the completed interviews broken down by service and type of user. Table 3 gives an overview of the number of completions per hour by service. Table 4 shows the disposition of every contact made by the interviewers for in-person interviews, by service. Table 5 shows the disposition of every contact for telephone interviews, by service. The tables are followed by a discussion of the method used to study each service as well as the details of the interviewing process. Overall, the low rate of eligible interviewees (51%) and the decision to drop one service led to a total of 388 completed interviews, 77% of the goal of 500.

Table 1 Wave I PROJECTED QUOTAS	
Name of Service **L1**	Number of Interviews
Reference Service	
Information Desk	7
Reference Desk - Library A	10
Reference Desk - Library B	10
Reference Consultation	6
Materials Delivery Service	
On-site recruitment	17
Online recruitment	17
Bibliographic Instruction	33
L2	
Art and Archeology - collection	34
Biology - Electronic reference	33
Psychology - reference	33
L3	
Enhanced Online Catalog	
On-site recruitment	17
Online recruitment	17
Undergraduate Reserve	
Faculty	7
Students	26

Table 1 (cont.) Wave I PROJECTED QUOTAS	
Science Libraries	
Carl UNCOVER	17
Document Delivery	17
L4	
Electronic Reference	33
Interlibrary Loan	34
Music and Media Center	
Faculty	7
On-site users	26
L5	
Automated Reference	34
Reference Service	33
Patents	33
TOTAL	**501**

Table 2. Wave I: COMPLETED INTERVIEWS

Service	Grad Stud	Faculty	Undergrd Studnts	Other Users	Total
L1					
Reference Service					
Information Desk	7				7
Reference Desk-L A	7	2	1		10
Reference Desk-L B	10				10
Reference Consult	6				6
Total	30	2	1		33
Mat'ls. Deliv. Svc.					
Onsite recruitment	25	8			33
Online recruitment		2			2
Total	25	10			35
TOTAL	55	12	1		68
L2					
Art&Arch-collection	21	6	7		34
Biology-Elec. ref.	15	10	8		33
Psychology-ref.	5	5	4		14
TOTAL	41	21	19		81
L3					
Enhanced Online Catalog					
Onsite recruitment	14	1			15
Online recruitment	12	6			18
Total	26	7			33

Table 2. (Continued)

Undergrad. Reserve					
Faculty		8			8
Students			28		28
Total		8	28		36
Science Libraries					
Carl UNCOVER	3	7			10
Document Delivery	3	1			4
Total	6	8			14
TOTAL	32	23	28		83
L4					
Electronic Ref	30	3			33
Interlibrary Loan	11	1			12
Music & Media Cntr.					
Faculty		7			7
On-site users	23	3			26
Total	23	10			33
TOTAL	64	14			78
L5*					
Automated Reference	31	3			34
Reference Service	20	2	12		34
Patents	2		1	7	10
Total	**53**	**5**	**13**	**7**	**78**
TOTAL	245	75	61	7	388

*A different survey instrument was used for L5.

Table 3. Wave I: COMPLETES PER HOUR*

In-Person	Completes	Hours	Compl/Hr
L1			
Information Desk	7	10.5	.66
Reference - Library A	10	9.0	1.1
Library B	10	12.0	.83
L2			
Art and Archaeology	34	25	1.36
Biology	33	33.25	.99
Psychology	14	39.75	.35
L3			
Online Catalog	15	13.5	1.11
Reserve Students	28	24.25	1.15
L4			
Electronic Reference	33	19	1.73
Music & Media On-site	26	25	1.04
L5			
Automated Reference	34	35.25	.96
Reference	34	26.25	1.29
Patents	10	29.75	.34
Total	288	302.50	.95
Telephone	100	46.5	2.15
TOTAL	**388**	**349**	**1.11**

*Telephone interviews were conducted as a unit. Therefore, completes per hour for telephone interviews are comprehensive.

Table 4. Wave I: In-person Interviews-Contact Dispositions

	Ineligible	Incomplete	Interviewer Terminate	Refusal	Other	Completes	Total
L1							
Information Desk (n)	24			3		7	34
(%)	(71%)			(9%)		(21%)	(101%)
Reference - Library A (n)	13*			1		10	24
(%)	(54%)			(4%)		(42%)	(100%)
Library B (n)	48		1	6		10	65
(%)	(74%)		(2%)	(9%)		(15%)	(100%)
L2							
Art & Archaeology (n)	70	2	3	44	1	34	154
(%)	(45%)	(1%)	(2%)	(29%)	(1%)	(22%)	(100%)
Biology (n)	20		1	3		33	57
(%)	(35%)		(2%)	(5%)		(58%)	(100%)
Psychology (n)	11			8		14	33
(%)	(33%)			(24%)		(42%)	(99%)
L3							
Online Catalog (n)	13			18		15	46
(%)	(28%)			(39%)		(33%)	(100%)
Reserve Students (n)	67	3	7	97		28	202
(%)	(33%)	(2%)	(3%)	(48%)		(14%)	(100%)
L4							
Electronic Reference (n)	54		3	15		33	105
(%)	(51%)		(3%)	(14%)		(31%)	(99%)
Music & Media On-site (n)	111**		3	20		26	160
(%)	(69%)		(2%)	(13%)		(16%)	(100%)

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Table 4. Wave I: In-person Interviews-Contact Dispositions (cont.)

	Ineligible	Incomplete	Interviewer Terminate	Refusal	Other	Completes	Total
L5							
Automated Reference (n)	63	1	2	36		34	136
(%)	(46%)	(1%)	(2%)	(27%)		(25%)	(101%)
Reference (n)	48	1		6		33	88
(%)	(55%)	(1%)		(7%)		(38%)	(101%)
Patents (n)	2		1	5		10	18
(%)	(11%)		(6%)	(28%)		(56%)	(101%)
TOTAL (n)	**544**	**7**	**21**	**262**	**1**	**287**	**1122**
(%)	**(49%)**	**(1%)**	**(2%)**	**(23%)**	**(0%)**	**(26%)**	**(101%)**

* Data missing for 11/15-16/93
**Data incomplete for 11/18/93

Table 5: Wave 1: Contact Dispositions--Telephone Interview

	Ineligib	Incompl	Interviewer	Refusal	No	Answer	Non-wor	Recontact	Complete	Total
L1										
Ref consultation	1		1		4	7	1	2	6	22
	4.5%		4.5%		18.2%	31.8%	4.5%	9.1%	27.3%	100.0%
Mat delivery	12		1		20	42	2	14	35	128
	9.4%		0.8%		15.6%	32.8%	1.6%	1.9%	27.3%	100.0%
L3										
Enhanced online	1			1	2	37	2	3	18	64
	1.6%			1.6%	3.1%	57.8%	3.1%	4.7%	28.1%	100.0%
Undergraduate reserve-faculty					9.00	22.00	1.00	9.00	8.00	49.00
					18.4%	44.9%	2.0%	18.4%	16.3%	100.0%
Science libraries										
Carl Uncover	2.00				5.00	35.00		3.00	1.00	55.00
	3.6%				9.1%	63.6%		5.5%	1.8%	100.0%
Document delivery	3.00			1.00	6.00	6.00		7.00	4.00	27.00
	11.1%			3.7%	22.2%	22.2%		25.9%	14.8%	100.0%
L4										
Interlibrary loan	1.00	2.00			4.00	17.00		7.00	12.00	43.00
	2.3%	4.7%			9.3%	39.5%		16.3%	27.9%	100.0%
Music and media-faculty					7.00	8.00		5.00	7.00	27.00
					25.9%	29.6%		18.5%	25.9%	100.0%
Total	20	2	2	2	57	174	6	50	10	415
	4.8%	0.5%	0.5%	0.5%	13.7%	41.9%	1.4%	12.0%	2.4%	100.0%

3.4 Details of Survey Administration By Service

3.4.1 L1 REFERENCE SERVICE

3.4.1.1 Information Desk

To administer the survey, we intercepted users after they asked their questions at the reference desk. Interviewing for this service went moderately well. Although we were able to meet the quota, the overall number of completed interviews ("completes") per hour was .66, primarily because 71 percent of those contacted were (ineligible) undergraduates.

3.4.1.2 Reference Desk

At both libraries, we studied this service by intercepting users after they asked the reference librarian a question and before they left the reference area.

3.4.1.2.1 Branch A

Interviewing at Branch A generally went well. The quota was met with 1.1 completes per hour. Initially, however, the interviewer was stationed near the reference desk so that she could see who asked the query and then approach him/her afterward. This made one of the librarians somewhat uncomfortable and so we repositioned the interviewer farther away from the desk and closer to the exit. Interviewing continued successfully.

3.4.1.2.2 Branch B

The initial completion rate at this library was very low. Almost three-fourths of those contacted were undergraduates or had been interviewed previously. We chose to include undergraduates in order to meet the quota which we did with .83 completes per hour.

3.4.1.3 Reference Consultation

For this service, the reference librarian provided us with 12 names and telephone numbers of individuals who had used the service and we telephoned them from the APLab. We were successful in obtaining the six completes we had projected.

3.4.2 L1: MATERIALS DELIVERY SERVICE (MDS)

We recruited respondents for this service using two methods:

A) On-line--A request for volunteers was placed on the campus-wide INFO Service menu (see Appendix F). Upon selecting "Libraries", then "PN9" for public news, the menu choice "Materials Delivery Service Survey" was offered. Respondents were invited to respond by e-mail or telephone the APLab to volunteer.

B) On-site--The librarians attached a form requesting that faculty and graduate students consent to participate (see Appendix F) to every MDS request form distributed at libraries on the three campuses. The forms were then submitted to circulation desk staff and forwarded to us.

The survey was then administered by telephone from the APLab.

The on-line recruitment produced only two volunteers (both leading to completed interviews). To compensate for this low response rate, we increased the quota for the on-site interviews. From 86 completed consent forms, we obtained 33 completed interviews.

3.4.3 L1: BIBLIOGRAPHIC INSTRUCTION

To compile the sample, L1 provided us with a list of faculty whose students had participated in BI. From that list, we requested they choose one faculty member for each of the courses we selected:

English 102
Biology 100
Social Responses to Environmental Problems OR Sociology of Gender

and telephone them to request participation.

At that point, L1 determined the data collection for this service was not feasible. Due to the late date of this decision, library L1 elected to waive their third selection.

3.4.4 L2 : ART AND ARCHAEOLOGY - THE COLLECTION

In this library users were intercepted and interviewed as they left the library. Initially, we had difficultly obtaining the requisite number of completes per hour. Although only 45 percent of those contacted were ineligible, slightly more than a fourth (29%) refused to be interviewed. As a result, we permitted the interviewers to accept undergraduate users. Further, we discovered that because it was a non-circulating collection, students were inclined to spend a lot of time in the library and it was important to interview during the hours when patrons left for meals. Ultimately, we met the quota with 1.36 completes per hour.

3.4.5 L2: BIOLOGY - ELECTRONIC REFERENCE

In this library, respondents were intercepted and interviewed as they left the work stations. Aside from having to open up the sample to undergraduates due to the low traffic, interviewing for this service went smoothly; the quota was met with a completion rate of .99 per hour. Only 35 percent of those contacted were ineligible and only 5 percent refused to participate.

3.4.6 L2: PSYCHOLOGY - REFERENCE

We began studying this service by intercepting and screening users after they asked the reference librarian a question. However, our completion rate was so low we decided to add users of the electronic services and to add undergraduate users. Neither tactic was as helpful as anticipated. After consulting with the librarian, we changed the interviewer and the interviewing days but that did not increase the completion rate either. We were able to complete only 14 of the anticipated 33 at a completion rate of .35 per hour. An analysis of the contact dispositions revealed that only 33 contacts were made in total, leading us to conclude that the library did not have enough traffic for us to meet our quota. The librarian confirmed our observation. She noted that most users were already familiar with the sources they required and did not need to ask the reference librarian questions or search the electronic reference services.

3.4.7 L3: ENHANCED ONLINE CATALOG

Interviews for this service were initiated in two ways:

A) On-site--Users were intercepted and interviewed as they left the enhanced online catalog work stations at one of the university libraries.

B) Online--Upon accessing the enhanced online catalog from a remote location users were provided with the following menu option:

#9: How are we doing?--Evaluation of (Service Name).

After choosing this option, they were invited to participate and to provide information so we could contact them (see Appendix F).

Responses were then electronically forwarded to a project staff member and the survey was administered by telephone from the APLab.

3.4.7.1 On-site

This service went exceptionally smoothly. The completion rate was 1.11 per hour. (We were two interviews short of the quota because of an interviewer illness.)

3.4.7.2 Online

We had a total of 41 online offers to be interviewed; 29 of whom were graduate students or faculty. The remainder were undergraduates. Candidates were telephoned from the APLab. Interviewing went well and the quota was met.

3.4.8 L3: UNDERGRADUATE RESERVE

3.4.8.1 Faculty

To study faculty, L3 provided us with 20 names and telephone numbers of instructors who had placed materials on reserve. We telephoned them from the APLab and were able to exceed our quota. Because of the nature of this service, there was some non-uniformity in how the respondents interpreted the questionnaire. Sometimes faculty answered the questions in terms of the benefits they received and other times in terms of the benefits their students received.

3.4.8.2 Students

To study the students, we intercepted them and administered the questionnaire after they returned the borrowed items. Again, the questionnaire did not always make sense to these users because of the nature of the service, particularly questions about their length of use. Nevertheless, we met our anticipated quota with a completion rate of 1.15 per hour.

3.4.9 L3: SCIENCE LIBRARIES

3.4.9.1 Document Delivery

Volunteers for this study were recruited in two ways:

A) In-person pick-up--For patrons who picked up material at the library, our request form (see Appendix F) was attached to each document when it was retrieved, then returned to the librarian upon completion. The forms were then forwarded to us.

B) Mailed items--For those documents delivered by mail, a return postage-paid postcard (see Appendix F) was included with the item so the user could mail it to us directly.

We administered the survey by telephone for both types of candidates.

For both methods of recruitment, we got so few volunteers from the Biology Library that, after discussing it with the librarians, we decided to expand this part of the study to the Psychology, Engineering and Math/Science Libraries. Despite this expansion, we received only eight returns from the request forms that were distributed at pick-up points. Out of 100 postcards given to the Biology Library initially, we only got back three. Therefore, we were only able to obtain 4 completes out of the 17 we had projected.

3.4.10 L3: Carl UNCOVER

L3 provided us with the names and telephone numbers of faculty numbers who had participated in the program and the survey was administered by telephone. From the 11 names, we were able to obtain 10 completed interviews.

3.4.11 L4: ELECTRONIC REFERENCE

To study the Electronic Reference Resources at L4, we intercepted and interviewed users as they left the work stations. To ensure that we obtained users on all three floors, the interviewers' locations were varied from shift to shift. Interviewing for this service went very well; the quota was met with a completion rate of 1.73 per hour.

3.4.12 L3: MUSIC AND MEDIA CENTER

3.4.12.1 On-site Users

To study on-site users at the Center, we intercepted them and administered the survey after they finished using the service/returned the borrowed item. The questionnaire was slightly awkward for this service but generally it went well. We met the quota with a completion rate of 1.04 completes per hour. We discovered that in order to "catch" those users who came to watch films after lunch, it was important to schedule the interviewer for late afternoon when the films ended.

3.4.12.2 Faculty

For the faculty users, L4 provided us with a list of 9 faculty members who had placed materials on reserve and agreed to be contacted. We administered the survey by telephone and obtained the 7 anticipated completes.

3.4.13 L3: INTERLIBRARY LOAN

We recruited volunteers for this service in two ways:

A) In-person--Our request form was handed to users when they retrieved their materials and then returned to library staff and forwarded to us.

B) By mail--For materials that were mailed to users, a postage-paid postcard requesting participation in the study was enclosed with the item so the user could mail it directly to us.

We administered this survey by telephone to volunteers of both types.

Only 17 consent forms (plus an additional seven after the closing deadline) were returned to us and out of 100 postcards sent out, only 10 were returned. A total of 10 interviews were completed.

3.4.14 L5: AUTOMATED REFERENCE

To study this service, we established quotas (7 for LEXIS/NEXIS and 27 for the other services) so that users of both sections were intercepted and administered the survey. Interviewing for this service went well. The quota of 34 interviews was met with a completion rate of .96 per hour.

3.4.15 L5: REFERENCE SERVICE

As with other reference services, users were intercepted and the survey administered after they asked the reference librarian a question and before they left the reference area. Interviewing for this service went very well; the quota was met with a completion rate of 1.29 per hour.

3.4.16 L5: PATENT SERVICE

To study this service, we intercepted users and administered the survey as they left the patents area. Because of the low completion rate, part of the way through the interviewing we opened up the service to both undergraduates as well as non-university affiliated users as the on-site manager suggested. However, this did not alleviate the problem. Only 18 contacts were made, indicating that there were not enough users during the interviewing period. We were able to complete only 10 of the anticipated 33 completes at a completion rate of .34 per hour.

3.5 THE INTERVIEWERS

3.5.1 Recruiting Interviewers

To hire the interviewing staff for L1, L2, L3, and L4 we posted recruitment notices (see Appendix F) at the Rutgers School of Communication, Information and Library Studies (which houses the Journalism, Communication, and Library and Information Science programs), and at the on-campus student employment offices on the three Rutgers campuses. In addition, we asked the Journalism Department chairperson to recommend outstanding undergraduate journalism students. We also requested that library science and journalism faculty announce the position in their classes.

Simultaneously, we investigated the possibility of hiring a professional market research field service to conduct the interviews. We found this would forfeit some quality and cost control and chose to proceed with the original plan.

The recruitment notice instructed interested applicants to contact the Project Manager. When they did, she gave them a cover letter and application form (see Appendix F).

Of the 21 applications returned, she scheduled interviews with 16 applicants. (Some were no longer interested, others' applications were received after the closing deadline, others were not available during the necessary times).

3.5.2 Interviewing the Applicants

During the interview, the Project Manager asked the applicants to elaborate on:

Any interviewing experience (if relevant)
Other work experience
Academic status
Availability
Preference for location
Preference for phone vs. in-person interviewing
Maximum and minimum number of hours they were willing to work
Knowledge of libraries
Personal interests (to get a sense of personality)
Availability of a home telephone

Where appropriate, the relevant information was recorded on the application.

The Project Manager also noted the applicant's degree of eye contact, friendliness, professionalism, assertiveness and overall presentation, and recorded any outstanding traits on the application form.

After interviewing the applicants, the Project Manager selected those who seemed most promising and compared their availability with the project needs. Based on the original estimate of about one completed interview per hour and a work schedule of approximately 10-15 hours per week, she hired eight interviewers and one substitute. Each interviewer was sent a letter offering a part-time position and outlining the job requirements, with a request that they return a signed copy (see Appendix F).

At L5, the on-site Project Manager recruited, interviewed and hired 4 interviewers and one substitute using the same procedures as the Project Manager at Rutgers.

Each interviewer was assigned a unique interviewer number for record-keeping purposes.

3.5.3 Training

L1,L2,L3,L4 (Training at Rutgers/SCILS)

All interviewers (including the substitute) were required to attend a two-hour, paid training session given by the Project Manager at Rutgers. The session was held on the Saturday morning prior to the first week of interviewing. On the application form all the interviewers had indicated they were available at that time.

Before the session began, each interviewer (excluding the substitute) was given a packet of supplies along with the following:

Questionnaires (for their assigned service(s))
Questionnaire Instructions
Tally sheets
A time sheet
An Interviewing Assignment/Schedule
A Special Instruction Sheet
An Interviewer Training Manual
A supply sheet

Attendees were encouraged to review the materials while waiting for the session to begin.

3.5.3.1 The agenda for the training session was as follows:

3.5.3.1.1 Welcome: 5 minutes

The Project Manager thanked the interviewers for attending the session then described the study's purpose and the interviewers' role in the study. She then told them the two most important points to be covered during the session:

1) To probe open-ended questions.
2) To be sure all interviews are taped and audible.

She then invited them to ask questions freely during the session.

3.5.3.1.2 Questionnaire Familiarization - 10 minutes

The interviewers were then requested to pair up and, with one person acting as the respondent and the other as the interviewer, read half the questionnaire to their partner, then, midway through, switch roles. This exercise was conducted to give the attendees first hand experience with the questionnaire, so that the remainder of the session would be more meaningful to them. Also, because some of the interviewers would be dealing with more than one service (and therefore, more than one version of the questionnaire) during the course of the study, for the entire training session, each interviewer used a questionnaire from his or her own packet. All were different.

3.5.3.1.3 Interviewing- 45 minutes

For this portion of the training session, the instructor went over the most important concepts from the Interviewer Training Manual (see Appendix E) citing examples where appropriate and emphasizing the following: Interviewing is one of the most important parts of the study; without it there is no data. There are certain procedures an interviewer can follow to guarantee we get high quality, accurate and valid information. They are:

- Develop rapport.
- Read the questionnaire as written.
- Know the different types of questions.
- Probe for the most specific response.
- Know how to handle a "don't know/refusal".
- Edit the questionnaire before handing it in.

During the discussion about probing, the Project Manager illustrated the technique by questioning some of the interviewers (i.e. Why did they choose their major?, Why did they attend the training session?, etc.) and probing their responses. She then had one of the interviewers question another and critiqued the probing skills.

Interviewers were instructed to tape one interview per side of the tape, to write the interview number on the tape, and to use pencil when interviewing.

At the conclusion of this portion of the session, the instructor asked the attendees to return to page 1 of the Training Manual, and had each attendee read one of the Summary Points. They were also told to read the Training Manual on their own before their first shift.

3.5.3.1.4 Break - 5 minutes

3.5.3.1.5 Questionnaire/Instructions/Tally Sheet - 30 minutes

During this portion of the session, each interviewer read a question from the questionnaire and the Project Manager reviewed the corresponding instructions from the Questionnaire Instructions. She also reviewed the procedure for completing the Tally Sheet and for numbering the questionnaires.

3.5.3.1.6 General Rules/Information - 20 minutes

At this point, the instructor asked each interviewer to look over his or her Special Instructions Sheet and presented miscellaneous general instructions as follows:

1. Keep the cassette recorder's VOR button in the "off" position and the sensitivity on "high".
2. Be sure the microphone is near the interviewer's mouth.
3. Introduce yourself to the contact person upon arriving at the interviewing site. That person will tell you where to position yourself to intercept interviewers.
4. If a question arises at the interviewing site, call the office collect and ask the question rather than possibly proceed erroneously.
5. Wear your name tag at all times.
6. Dress neatly/professionally (preferably no jeans) as you are representing Rutgers University.
7. Try to obtain as many completes at each shift as possible.
8. Be aware of your screening requirements.
9. Bring your "compMwtes" and Tally Sheets to the APLab the day after your shift unless other arrangements have been made.
10. Call the day before to find out if you need to come in for your phone shift.
11. To be reimbursed for travel you must present your receipts.
12. How to fill out the Time Sheet.
13. If you require directions to the interviewing site, please see the Project Manager after the training session.
14. To determine how many tapes you need, take your quota and divide it by 2 then add 5. (One interview per side plus 5 extra.)
15. The record keeping for telephone interviewing differs slightly from in-person interviewing. You will be instructed on this at your first phone shift.
16. Practice interviewing with a roommate, spouse, friend, etc. before going to your first interview.

In addition, interviewers were given the Project Manager's office hours. They were also advised that their Time Sheets would be submitted to the Accounting Office for payment after all equipment was returned.

3.5.3.1.7 Practice Interviewing - 10 minutes

The Project Manager then asked the interviewers to pair up and conduct one taped interview each with their partner.

3.5.3.1.8 Closing

Interviewers were thanked for attending and asked to take their tapes and record how many they took on the sign-up sheet. They were also given an opportunity to sharpen their pencils.

3.5.3.2 Training at Library L5

For L5, the training session was conducted on-site by one of the Project Directors who used the same training session materials and followed the same outline used at Rutgers.

3.5.4 Reviewing the Work of Interviewers

After each interviewer's first shift, the Project Manager listened to his/her tapes and reviewed the written questionnaires to check the quality of the interviewing. Afterward, the Project Manager discussed her observations with the interviewer or in the case of L5, with the on-site Manager. If necessary, the Project Manager repeated the procedure for the following shift, until any difficulties were resolved. Throughout the remainder of the interviewing period, the Project Manager randomly chose a few interviews and listened to them for quality control.

3.6 THE RESEARCH INSTRUMENTS

3.6.1 Focus Groups

Prior to the survey waves we conducted a preliminary phase which consisted of two focus groups at two of the libraries. For the L1 group, a senior library administrator invited 13 university faculty members who use the library regularly. Of the 13, 11 attended the group. A variety of disciplines were represented, including religion, sociology, mathematics, art history, history, human ecology, chemistry, economics, english, and the alcohol studies center. At L2, a senior library administrator recruited 14 graduate student users from the three libraries studied there, 13 of whom attended the group. The students, three from the biology department, four from psychology and six from art history, were referred to the administrator by the librarians at the individual libraries. The sessions, both of which were tape recorded, were held from 12:00-1:30 p.m. and lunch was served.

The groups were conducted by a trained focus group moderator using a Moderator Guide (see Appendix G) which addressed all of the issues in the preliminary draft of the survey instrument including:

1. Library Usage
2. Benefits of Library Usage
3. Measurement of Library Usage

Tape recordings of both groups were transcribed for further review. A preliminary analysis of the groups confirmed our suspicion that users describe the benefit, or lack of benefit, of library services in terms of time and money. In addition, they allude to other less economically tractable measures such as their perceptions of the institution as a whole, external perceptions of the institution, and their ability to "do what they do" as scholars.

We proceeded with questions to assess the benefits of library services in time, money and convenience in the quantitative portion of the study. Further, as a direct result of one faculty member's comment that she does not give "points" to the library for having what she wants because she expects that it will, yet deducts them when it does not (similar to the way she grades an exam), we added a "grading" question about the users' experience with the service.

3.6.2 The Questionnaire

3.6.2.1 L1, L2, L3, L4 (Version 1.1)

In developing the survey instrument for the quantitative portion of the study, we used the following topic areas as our guide:

- The user's learning curve for the service (i.e. knowledge, experience, skill level, etc.)

- The presentation of the user's information problem.

- The effectiveness of the service (i.e. value --time and dollar, benefit, impact, convenience, satisfaction, success, etc.).

- The affective responses to the service (satisfaction, comfort, difficulty, frustration, etc.).

After numerous modifications, we arrived at a master version for pretesting. As a preliminary pre-test, we conducted two telephone interviews with personal acquaintances who had recently used a library. We then obtained permission from one of the participating libraries and conducted three interviews with actual library users.

During the pre-test, we corrected some typographical errors and omissions. We developed two final master versions of the questionnaire: one for telephone interviews and one for in-person interviews (see Appendix A). On the master versions, we left easily identifiable symbols for word-processor insertion of the library and service names. We also added coding columns, detailing the column in which the response to each question would be recorded for computer input. Once the 17 basic versions were created, we modified each one as appropriate for the particular service (some questions were omitted, some of the wording was changed slightly, etc.) and circled the corresponding numerical code for the Library, the Service, and the Version. (In some cases we studied more than one aspect of the same service.)

On the questionnaires, all interviewer instructions were printed in capital letters and critical instructions were emphasized with bold print. Information to be read by the interviewer was printed in normal type. For closed-ended questions (with predesignated responses) the interviewer needed only to circle the number corresponding to the response given. For actual numerical responses, interviewers were requested to use whole numbers only. Because the interviews were taped, interviewers did not need to record resMwnses to open-ended questions.

A set of detailed Questionnaire Instructions, with detailed instructions for each question (see Appendix H) was prepared.

3.6.2.2 Instrument at Library L5 (Version 1.2)

Because L5 was recruited after the other libraries, we conducted the Wave I interviews for L5 later than the others. We used the delay to perform preliminary analysis, and to modify the questionnaire and experiment with new questions based upon what we learned from this analysis. As a result, the order of the questions was changed, some of the original questions were deleted, and new open-ended questions were added (see Appendix A). The new questionnaire was pretested at one of the participating libraries and again we created a master version, inserted the library and service names where appropriate and pre-marked the Library, Service and Version. Questionnaire Instructions were also prepared.

3.7 PROJECT MANAGEMENT

3.7.1 Human Subjects Protection

Because we were conducting research with human subjects, we filed a "Request for Exemption" with the Rutgers University Institutional Review Board for the Protection of Human Subjects in Research. We were granted an exemption from having our respondents complete a consent form, on the grounds that our questionnaire was anonymous and fell within Rutgers University guidelines for exempt research.

3.7.2 Scheduling Interviewers

We decided that interviewing would take place only during weekdays because we would be more likely to find faculty users and less like to encounter non-university affiliated users.

3.7.2.1 In-Person Interviews

To schedule the on-site interviewers, the Project Manager converted the quota for each service to interviewer hours per week and, where appropriate, added travel time. She then matched a list with of interviewers' preferences and availability with the information from the Impact Study Feasibility Report. With primary emphasis on covering each service during the most productive times, she developed a schedule for each service. In all but one case it was possible to assign interviewers to cover the best time slots. For the one exception, the interviewer was scheduled at a less busy time.

3.7.2.2 Telephone Interviewers

To schedule the telephone interviews, the Project Manager divided the day into three shifts: 9-12:00, 1-5:00, and 6-9:00. She then made a list of the available hours remaining for the interviewers after their in-person schedules were established, and scheduled one or two people for each time slot.

Once the schedules were set (about a week prior to the onset of the interviewing), the Project Manger telephoned each interviewer with the schedule and location. In addition, at the training session (see below), each interviewer was given a written Interviewing Assignment/Schedule. (See Appendix F). The interviewers were advised that due to the uncertain outcome of the interviewing the in-person schedule was for the first week only and subject to change as the study developed. Also, they were to telephone the APLab prior to their scheduled phone shift to determine if there was work.

In addition to providing the interviewers with their schedules, the Project Manager advised the librarians at each library as to the interviewer's schedule, again reminding them that these were tentative until the conclusion of week 1. Throughout the study the Project Manager remained in close contact with the participating librarians by phone or electronic mail.

3.7.2.3 Interviewer Numbers

Each interviewer was assigned a unique interviewer number which was recorded on every questionnaire he/she completed.

3.7.2.4 Equipment/Supplies

To tape the in-person interviews we purchased Sony portable cassette recorders (Model TCM-S64V) for the interviewers. They cost approximately $30 each. For the telephone interviews a microphone was attached to the telephone ear-piece and to a desk-top cassette recorder.

In addition, we gave each interviewer the following supplies:

Cassette tapes
4 AA batteries (2 for the recorder and 2 extra)
A clip board
A name tag
Pencils
A portable pencil sharpener

3.7.2.5 Numbering the Questionnaires

To number the in-person interviews, we instructed the interviewers to begin with their interviewer number and then, beginning with 01, continue on consecutively. Thus, interviewer 6 coded interviews as 601, 602...etc. In cases where the interviewer was working on more than one service, we set a starting number for each service allowing for the quota.

For the telephone interviews, which were conducted from the APLab by a few interviewers, all the interviews were numbered beginning with "8" or "9" (depending upon the telephone used), regardless of the service. Mw For L5, because there were no phone interviews, all interviewers were instructed to begin numbering the completed interviews with 001 and continue on consecutively with the understanding that when processed the number would be preceded by a unique interviewer number. In retrospect, we believe that a fixed numbering scheme should be imposed at the outset, and maintained thorughout the project.

3.7.2.6 Tally Sheets

For the in-person interviewing every interviewer was required to keep a Tally Sheet for every shift. (See Appendix F). On the Tally Sheet, the interviewer made a tick mark in the appropriate box for every potential respondent approached using the following guidelines:

Ineligible respondent: an individual who does not qualify for the study based upon the responses to the questions on page 1 of the questionnaire.

Incomplete: an interview terminated by the respondent before completion. (The interviewer actually wrote on the questionnaire from Q.1 on.)

Interviewer terminate: an interview terminated by the interviewer because of a language problem, hearing problem, etc.

Refusal: a potential respondent who refused to be interviewed after being approached.

Complete: an interview in which the respondent's answers have been recorded on the questionnaire and on the tape recorder and the interview number recorded on the tape.

Once the interviewing began, the interviewers were asked to bring their completed in-person interviews and Tally Sheets to the APLab after each shift. Upon receiving them, the Project Manager recorded the number of completed interviews and hours worked to determine the average number of completes per hour for each service.

At L5, we asked the interviewers to record the exact hours worked on the Tally Sheet so we could calculate completes per hour more efficiently.

3.7.2.7 Call Disposition Sheets

For phone interviews, the interviewers were given a set of Telephone Interviewing Instructions (see Appendix H) and were required to record the outcome of every phone call on the Call Disposition Sheet (see Appendix F) following the same guidelines as above.

3.7.2.8 Editing

Throughout the interviewing period, upon receiving the completed questionnaires, the Project Manager edited each one. This included:

-Checking to see the questionnaire was filled out completely and accurately.
-Drawing a slash through any skipped questions (to help increase the keypuncher's speed).
-Coding the Area Study/Department question.

3.7.2.9 Keypunching/Transcribing

Once the interviews were completed, the closed-ended responses from the questionnaires were keypunched and the open-ended questions transcribed. After obtaining cost estimates and calling references, we hired outside suppliers for both tasks.

3.7.2.9.1 Keypunching

Along with the edited questionnaires, we provided the keypuncher with a list of: the questions, our preferred variable name, the corresponding coding columns and the valid responses for each one. In addition, we asked that he skip over the open-ended questions, punch "-1" for "no responses" and punch each questionnaire twice to verify the entries.

We received a floppy disk with the data as well as a hard copy, both in a lotus 123 spreadsheet format. Upon receiving it, we randomly chose 10 questionnaires and checked that each was punched without any errors. We requested data in Lotus-1-2-3 format, for easy transfer into SPSS data file format.

3.7.2.9.2 Transcribing

After an initial disappointing experience with a transcriber who did not transcribe the responses verbatim, we switched to another and had her do five interviews which we checked carefully. Once satisfied, we gave her a few more and checked them. Satisfied again, we gave her the remainder and upon receiving the transcripts, we randomly selected a few and checked them carefully.

The transcriber provided us with a hard copy of each transcript (See the Report, Part 1, for an example) as well as a floppy disk with all of the transcriptions in Word Perfect format. In retrospect, more detailed definition of the format would have simplfiied machine processing of those transcripts.

3.7.2.10 Labor Costs

The total labor cost for administering, keypunching and transcribing the Wave I questionnaires are outlined below:

Task	Quantity	Rate	Cost
Interviewers (Training and Interviewing)	442.25 hrs.	$10/hr.	$ 4,422.50
Keypunching	388	.80/interview	$ 310.40
Transcribing	388	$8.00/interv.	$ 3,104.00
TOTAL			**$ 7,836.90**

The average cost per interview was: $20.20. Travel costs have been omitted. The cost of administering and supervising the work of the interviewers is difficult to separate from the work of developing manuals, instruments and forms. At a minimum it is 40 hours for recruitment and training, 120 hours supervising data collection, and 40 hours dealing with keypunch service and transcription service. During Wave 1.1, a total of 11 services were studied. We estimate that 30% of the administrative costs are fixed costs and the remaining 70% are variable. This results in an estimated administrative cost of

$(0.3) \times (200 \text{ hrs.}) + N/11 \times (0.7) \times (200 \text{ hrs.})$
$= 60 \text{ hrs.} + 12.7 \times N \text{ hrs.}$
where N is the number of services.

Because Wave 1 was conducted in two parts the total administrative costs are estimated at

$60 + 11/Q \times 12.7$
$+ 60 + 3 \times 12.7 = 298$ hours

The administrative cost is given in hours rather than dollars because the work was divided between project manager and principal investigator. The project manager should be an individual with at least 18 months experience in survey research.

4 DELAYED IMPACT ASSESSMENT: WAVE 2

The primary goal for Wave 2 was to explore the long-term impact of the services used. As such, the study consisted of either an initial in-person interview which we called an "Audition" followed by a telephone "Callback" two weeks later OR a "Phone" interview two weeks after the individual used the service. The phone interview was used for services that do not bring the user to the library.

4.1 Schedule of Wave 2

Again, we established an approximate schedule (taking into consideration the Spring breaks at all institutions) as follows:

1/3-3/4/94	Recruit Interviewers/Develop Questionnaires
3/7-3/11/94	Pretest Questionnaire
3/21-3/25/94	Train Interviewers
3/28-4/8/94	In-person Interviewing
4/11-4/29/94	Telephone Interviewing

Overall, we were able to keep to the schedule.

Data collection for Wave I was managed as in Wave II.

4.2 THE SERVICES

For Wave II, we studied most of the same services as in Wave I. Some were eliminated based upon our experiences in the first wave. A discussion of the services follows:

4.2.1 Library L1

At L1 we studied the same 2 services as in Wave II; once again, L1 elected not to select a third service.

4.2.2 Library L2

At L2 we also studied all of the same services. However, at the Psychology library, we included users of the Electronic Reference Services from the onset, based upon our experience in Wave I.

4.2.3 Library L3

At L3 we studied the Enhanced Online Catalog and the Science Document Delivery service again. We eliminated the undergraduate Reserve service based on our findings, from Wave I, that it was not particularly well suited to the nature of the study. We also found that we had exhausted the list of Carl UNCOVER pilot project names during Wave I and, therefore, we were unable to study that service again.

4.2.4 Library L4

At L4 we studied the Electronic Reference and the Interlibrary Loan services again. We did not include the Music and Media center because, like the undergraduate Reserve service at L3, it was not suited to our methodology or questionnaire.

4.2.5 Library L5

At L5 we studied all of the services that we studied in Wave I.

4.3 Recontacting Librarians

Prior to the start of Wave 2, we contacted all of the libraries where we had difficulties (e.g. in meeting quotas) during Wave I, to determine if there was anything we could do to improve our data collection methods for this Wave. In response, the L2 Psychology librarian suggested we position the interviewer at the library exit rather than inside the library near the reference desk so as not to intimidate the librarian.

4.4 Establishing Quotas

Prior to the start of Wave 2 we again set approximate quotas of completed interviews for each service at each library. (See Table 6). Our plan was to conduct 50 initial ("Audition") or full telephone interviews at each library (34 at L1 where we only studied two services) and then recontact ("Callback") as many of the Audition respondents as possible two weeks later. For the Telephone interviews we aimed to wait two weeks after the candidates had volunteered so that they had time to actually use the materials they had obtained.

4.5 Study Outcome: Response Rates

Overall, Wave 2 interviewing went better than Wave 1: 1.38 completed interviews per hour. The average number of completes per hour for in-person ("Audition") interviews was also slightly higher at .99 per hour. The Callback and Telephone interviews, combined, averaged 2.28 completes per hour. Of all the in-person Audition contacts, about 30 percent resulted in completed interviews. Fifty-six percent were ineligible and 12 percent refused to be interviewed. Fewer than 5 percent of the interviews were terminated while in progress. Of all the Callback contacts, 17 percent resulted in completed interviews; of all the Phone contacts, 19 percent resulted in completed interviews. Overall, 69 percent of the auditions resulted in a successful Callback.

Table 7 provides an overview of the completed interviews broken down by service and type of interview. Table 8 gives an overview of the number of completes per hour by service. Table 9 shows the disposition of every contact made by the interviewers for in-person interviews, by service. Tables 10 and 11 show the disposition of every contact for Callback and Telephone interviews by service. Table 12 presents the percentage of Auditions that resulted in a successful Callback, by service. The tables are followed by a discussion of the outcome for each service.

Table 6: Wave II Projected Quotas

Name of service	Number of
L1	
Reference service	
Information desk	4
Reference desk-Branch A	4
Reference desk-Branch B	4
Reference consultation	4
TOTAL	16
Materials delivery service	17
TOTAL*	33
L2	
Art & Archaeology-collection	17
Biology-electronic reference	17
Psychology-reference	16
TOTAL	50
L3	
Enhanced online catalog	
On-site recruitment	13
Online recruitment	13
TOTAL	26
Science document delivery	24
TOTAL	50
L4	
Electronic reference	25
Interlibrary loan	25
TOTAL	50
L5	
Automated reference	17
Reference service	17
Patents	16
TOTAL	50
TOTAL	233

Table 7: Wave 2: Completed Interviews

	Audition	Callback	Phone
L1			
Reference Service			
Information Desk	4	3	
Reference Desk-Library A	4	3	
Reference Desk-Library B	4	2	
Reference Consultation			1
Materials Delivery Service			18
L2			
Art & Archaeology-Collection	17	15	
Biology-Electronic Reference	17	8	
Psychology-Reference	16	11	
L3			
Enhanced Online Catalog			
Onsite	13	9	
Online			12
Science Document Delivery			6
L4			
Electronic Reference	25	15	
Interlibrary Loan			2
L5	17	14	
Automated Reference	17	13	
Reference Service	10	7	
Patents	10	7	
Total	154	107	39

Table 8. Wave 2: Completes Per Hour

	Complete	Hours	Completes Per Hour
Auditions			
L1			--
Reference Service			
Information Desk	4	9.25	0.43
Reference Desk-Branch A	4	4	1.00
Reference Desk-Branch B	4	3	1.33
L2			
Art&Archaeology-Collection	17	7.75	2.19
Biology-Electronic Reference	17	18.5	0.92
Psychology-Reference	16	13.5	1.19
L3			
Enhanced Online Catalog	13	10	1.30
L4			
Electronic Reference	25	18.5	1.35
L5			
Automated Reference	17	16	1.06
Reference Service	17	17.5	0.97
Patents	10	26.75	0.37
TOTAL	144	144.75	0.99
CALL BACKS and PHONE*	139	61	2.28
TOTAL	**283**	**205.75**	**1.38**

*Callbacks and phone interviews were conducted as a unit

Table 9: Wave 2: Contact Dispositions--Audition						
	Ineligible	Incomplete	Interviewe	Refusal	Complete	Total
L1						
Information desk	49			2	4	55
	89.1%			3.6%	7.3%	100.0%
Reference-Library A	36		1		4	41
	87.8%		2.4%		9.8%	100.0%
Reference-Library B	5				4	9
	55.6%				44.4%	100.0%
L2						
Art & Archaeology	16.00		1.00	5.00	17.00	39.00
	41.0%		2.6%	12.8%	43.6%	100.0%
Biology	1.00		2.00	2.00	17.00	22.00
	4.5%		9.1%	9.1%	77.3%	100.0%
Psychology	88			11	16	115
	76.5%			9.6%	13.9%	100.0%
L3						
Online catalog	1.00			6.00	13.00	20.00
	5.0%			30.0%	65.0%	100.0%
L4						
Electronic reference	36.00		1.00	9.00	25.00	71.00
	50.7%		1.4%	12.7%	35.2%	100.0%
L5						
Automated reference	20	11	1	14	17	53
	37.7%	20.8%	1.9%	26.4%	32.1%	100.0%
Reference	19		3	5	17	44
	43.2%		6.8%	11.4%	38.6%	100.0%
Patents	1		1	2	10	14
	7.1%		7.1%	14.3%	71.4%	100.0%
Total	272	11	10	56	144	483
	56.3%	2.3%	2.1%	11.6%	29.8%	100.0%

Table 10: Wave II: Contact Dispositions--Callbacks										
	Ineligible	Incomplete	Interview Terminate	Refusal	No Busy	Answer Machin	Non Incorr	Reconta	Comple	Total
L1										
Reference Service										
Information Desk		1				16		1	3	21
		5%				76%		5%	14%	100%
Reference Desk-Library A						3		1	3	7
						43%		14%	43%	100%
Reference Desk-Library B				1	6	24		5	2	38
				3%	16%	63%		13%	5%	100%
L2										
Art & Archaeology			1		5	20		11	15	52
			2%		10%	38%		21%	29%	100%
Bio. Elect. Reference		2	1		1	55	2	15	8	84
		2%	1%		1%	65%	2%	18%	10%	100%
Psychology-Reference			2		4	29	2	18	11	66
			3%		6%	44%	3%	27%	17%	100%
L3										
Enhanced Online Catalog-Onsite					1	18		9	9	37
					3%	49%		24%	24%	100%
L4										
Electronic Reference			1	2	2	93		14	15	127
			1%	2%	2%	73%		11%	12%	100%
L5										
Automated Reference			1			38	3	5	14	61
			2%			62%	5%	8%	23%	100%
Reference Service	1				4	27		16	13	61
	2%				7%	44%		26%	21%	100%
Patents					2	31		12	7	52
					4%	60%		23%	13%	100%
TOTAL	1	3	6	3	25	344	7	107	100	606
	0%	0%	1%	0%	4%	57%	1%	18%	17%	100%

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Table 11: Wave 2: Contact Dispositions-Phone Interview

	Ineligible	Incomplete	Intervi	Refusal	No	Answerin	Non-work	Recont	Comple	Total
L1										
Reference consultation	2	2			1	7		1	1	14
	14.3%	14.3%			7.1%	50.0%		7.1%	7.1%	100.0
Materials delivery	2			1	5	24		11	18	61
	3.3%			1.6%	8.2%	39.3%		18.0%	29.5%	100.0
L3										
Enhanced online	2		1		1	58	1	7	12	82
	2.4%		1.2%		1.2%	70.7%	1.2%	8.5%	14.6%	100.0
Science document delivery					12	11		5	6	34
					35.3%	32.4%		14.7%	17.6%	100.0
L4										
Interlibrary loan						9	1		2	12
						75.0%	8.3%		16.7%	100.0
TOTAL	6	2	1	1	19	109	2	24	39	203
	3.0%	1.0%	0.5%	0.5%	9.1%	53.7%	1.0%	11.8%	18.8%	100.0

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Table 12: Wave 2: Percentage of Auditions Resulting in Callbacks

	Auditions	Callbacks	%
L1			
Reference service			
Information desk	4	3	75%
Reference desk-Branch A	4	3	75%
Reference desk-Branch B	4	2	50%
TOTAL	12	8	67%
Materials delivery service			
TOTAL	12	8	67%
L2			
Art & Archaeology-collection	17	15	88%
Biology-electronic reference	17	8	47%
Psychology-reference	16	11	69%
TOTAL	50	34	68%
L3			
Enhanced online catalog-onsite	13	9	69%
L4			
Electronic reference	25	15	60%
L5			
Automated reference	17	14	82%
Reference services	17	13	76%
Patents	10	7	70%
TOTAL	44	34	77%
TOTAL	144	100	69%

4.5.1 L1: Reference Service

4.5.1.1 Information Desk

For this service, our number of "completes per hour" was only .43. We elected not to include undergraduates in order to be consistent with Wave I. Of the four completed Audition interviews, we were able to obtain three successful Callback interviews.

4.5.2 L1: Reference Desk

4.5.2.1 Branch A At this branch we obtained one completed interview per hour. Of the four completed interviews we were able to obtain three completed Callback interviews.

4.5.2.2 Branch B Based on our experience during Wave I we included undergraduates in the sample from the onset. The completion rate here was 1.3 per hour. Of the four completed interviews, we were able to obtain two successful Callback interviews.

4.5.3 L1: Reference Consultation

For this service, we discovered that of the 7 names and telephone numbers that had been provided to us only 3 had used the service recently enough to be useful. From them we were able to obtain one successful phone interview out of a projected four.

4.5.4 L1: MATERIALS DELIVERY SERVICE

For this service we only received 4 online volunteers. The remaining 22 were on-site volunteers. From the 26, we obtained 18 completed interviews.

4.5.5 L2: ART AND ARCHEOLOGY - THE COLLECTION

We opened up this study to include undergraduates from the onset and were able to obtain 2.19 completed interviews per hour. From the 17 Auditions we were able to obtain 15 successful Callbacks.

4.5.6 L2: BIOLOGY - ELECTRONIC REFERENCE

We opened up this study to include undergraduates from the onset also and we obtained .92 completed interviews per hour. Of the 17 completes we were able to obtain 8 successful Callbacks.

4.5.7 L2: PSYCHOLOGY - REFERENCE

We opened up this study to include undergraduates from the onset and we obtained 1.20 completed interviews per hour. From the 16 completed Auditions we were able to obtain 11 successful Callback interviews.

4.5.8 L3: ENHANCED ONLINE CATALOG

For the on-site users of this service we were able to obtain 1.30 completed interviews per hour. Of the 13 Auditions, 9 resulted in successful Callback interviews. For the online users who were contacted by telephone, we received a total of 45 online offers to be interviewed; 20 of them were from graduate students or faculty. (The remainder were undergraduates or alumni). We obtained 12 of the projected 13 Phone interviews.

4.5.9 L3: SCIENCE LIBRARIES

Document Delivery

For this service we only received 6 volunteers (and another 5 after the closing deadline); of the 6, 2 were from postcards (50 had been mailed out) and the remainder were from consent forms distributed on site. All of them resulted completed Phone interviews.

4.5.10 L4: ELECTRONIC REFERENCE

For this service we obtained 25 completed on-site interviews at a completion rate of 1.35 per hour. Of the 25 completed Auditions, we were able to obtain 15 successful Callbacks.

4.5.11 L4: INTERLIBRARY LOAN

We obtained only 2 returned postcards out of the 50 mailed out and 1 form. From them we obtained two successful Phone interviews.

4.5.12 L5: AUTOMATED REFERENCE

This service went very well with 1.10 completed interviews per hour. Of the 17 completed Auditions, we were able to obtain 14 successful Callbacks.

4.5.13 L5: REFERENCE SERVICE

This service also went well. We obtained the projected 17 Auditions at a completion rate of .97 per hour. We were able to Callback 13 of the 17 completed Auditions.

4.5.14 L5: PATENT SERVICE

As in Wave 1 this service did not go as well as anticipated. Of the 16 projected, we were able to obtain only 10 Auditions even though we opened up this service to undergraduates and other users from the outset. From the Auditions we obtained 7 successful Callback interviews. Again, we determined that there were simply not enough users during the interviewing period.

4.6 THE INTERVIEWERS

4.6.1 Recruiting Interviewers

To hire interviewers for this wave, we sent out a letter (see Appendix F) to the most effective interviewers from Wave I and invited them to work again. We asked them to contact us if they were interested. In addition, we posted the recruitment notice on the bulletin boards at the Rutgers School of Communication Information and Library Studies and asked Journalism and Library Science Faculty to announce the position in their classes. We chose not to post the recruitment notice at the on-campus student employment offices based on our experience from Wave 1.

Of the 5 interviewers from Wave 1 who were invited back, 4 were interested in working again. In addition, 3 new candidates were given a revised application form (see Appendix F). All 3 were interviewed and offered the position. Only 2 accepted. For L5, all of the Wave 1 interviewers were rehired.

4.6.2 Training

The training session for Wave II followed an outline similar to that for Wave I with a few modifications. During the discussion about the Questionnaire, Instructions, and Tally Sheet we used overhead slides to demonstrate how to fill out the documents. To demonstrate how to write a synopsis (see "The Questionnaire") we played recordings of 3 interviews, then had a trainee read aloud the examples of synopses which were handed out (See Appendix F). During the session, interviewers who had worked on Wave 1 were invited to interject their observations and comments where helpful. During the practice interviewing, the Project Manager paired each of the novice interviewers with one of the experienced interviewers from Wave 1. Because of the additional material covered, the session lasted an extra half hour.

For L5, the on-site Project Manager conducted the training session using the materials and outline used at Rutgers.

4.6.3 Reviewing

Once again, after each interviewer's first shift, the Project Manager listened to the interviewer's tapes and reviewed the written Questionnaires to check the quality of the interviewing. Afterward, the Project Manager discussed her observations with the interviewer. This continued until any difficulties were resolved. Throughout the interviewing period, the Project Manager randomly chose a few interviews and listened to them for quality control.

4.7 THE RESEARCH INSTRUMENT

4.7.1 The Questionnaires

In developing the survey instruments for Wave 2 we had three primary objectives: the first was to continue quantifying the value of the service in even more detail, the second was to obtain an assessment of the value of the service two weeks after the person used it, and the third was to obtain a reading of the value of the service in relation to other University services. To these ends, we first developed The Audition and the Callback Questionnaires, drawing from the Wave I questionnaire and modifying it where appropriate. (See Appendix A) At the end of the Audition, we included a question asking if we could call the respondent back two weeks later, to explore the long term impact of the service. If the respondent agreed, the interviewer was instructed to turn to the last page of the questionnaire and record the respondent's name, telephone number, and the best time to call. The interviewer was instructed to write a synopsis of the user's information problem immediately after the interview. For services that were studied only by telephone, the Telephone questionnaire (see Appendix A) contained the questions from both the Audition and the Callback.

After all the questionnaires were developed, we conducted a pretest at one of the participating libraries. During the pretest we modified some of the wording on the new questions. Once satisfied, we created the versions for each service using a procedure similar to that used in Wave 1.

Again, all instructions to interviewers were printed in capital letters, critical instructions were emphasized in bold print, and all interviews were tape recorded. A set of detailed Questionnaire Instructions for each questionnaire was prepared. (See Appendix H), along with a revised set of Telephone Interviewing Instructions (see Appendix H).

Once the Auditions were completed, we detached the last pages (Synopsis) and separated them into two piles. In one pile we placed the 22 Audition respondents who would not be called back, either because they had refused or because they had responded that the service was not at all helpful (a "1" or a "2") to Q.3. In the other pile, we put all those who were to be called back. Each Audition Synopsis was stapled to a Call Disposition Sheet and, where appropriate, information from the Audition Sheet was copied onto the Call Disposition Sheet (see Project Management section).

4.8 PROJECT MANAGEMENT

4.8.1 Scheduling Interviewers

For Wave II we only interviewed during the week, as in Wave I. To schedule the on-site interviewers the Project Manager calculated the number of required interviewing hours for each service based upon the completes per hour for Wave I and the Wave II quotas. She then made one list of the interviewers' preferences and availability and another of the information from the Impact Study Feasibility Report and the results of her conversations with the librarians. With primary emphasis on covering the libraries during the most productive times, she developed a schedule for each service. She was able to meet all needs satisfactorily. Again, the Project Manager was in close contact with the librarians at each library advising them of the interviewers' schedules and any changes.

To schedule the telephone interviews she again divided the day into three shifts: 9-12:00, 1-5:00, and 6-9:00. She then made a list of each interviewer's available hours, and then developed a schedule (see Appendix F). For each time slot she scheduled one interviewer and a backup interviewer. The interviewers were advised that they were personally responsible for calling the backup if unable to make their shifts and were given a list with their colleagues names and telephone numbers. Again, each interviewer was given an Interviewing Assignment/Schedule and advised to phone the APLab prior to their phone shift to determine if there was work.

4.8.2 Numbering the Questionnaires

For Wave II all Audition and Telephone interviews were prenumbered. The first digit identified the library. For the Callback interviews the number to the corresponding Audition was recorded on the corresponding Callback interview, so that the Audition and the Callback could be matched up in data analysis.

4.8.3 Color Coding

To facilitate the management of the interviews, the Audition, Callback, and Telephone interviews were each reproduced on different colored paper: white for Audition, green for Callback, and yellow for Telephone.

4.8.4 Tally Sheets

Again, interviewers were required to keep a Tally Sheet for every shift. The Tally Sheet was modified slightly to facilitate the calculation of the completes per hour on a daily basis. (See Appendix F).

For Wave 2, the Project Manager used an Interview Tracking Form to track the daily and cumulative completes per hour for each service. The form was not as helpful as anticipated.

4.8.5 Call Disposition Forms

For Wave 2 the call dispositions for Callbacks and Phone interviews were recorded differently than for Wave 1. Each number to be called had its own Call Disposition Form on which the dispositions of calls to that number could be recorded. (See Appendix F). As in Wave I, the interviewers were required to record the outcome of every call on the sheet.

4.8.6 Tracking Callback and Phone Interviews

To track the progress and status of the Callback and Phone interviews the Project Manager developed a sheet for each library with all the interview numbers for that library by service (see Appendix F). On the sheet she crossed out with a red pen the interview numbers for those who had refused to be called back or who had given a non-helpful response. She also crossed out any interview numbers for interviews that were missing, and eliminated any interview numbers for services for which we did not have enough phone numbers. Then, as the Callbacks or Phone interviews were completed she marked them with a pencil by putting an "X" through them. Thus, she was able to identify which Auditions still needed to be called back at any given time.

4.8.7 Keypunching

Once the interviews were completed, the responses to the closed-ended questions were keypunched and the open-ended questions transcribed.

Along with the edited questionnaires, we again provided the keypuncher with a list of the questions, preferred variable names and the valid responses for each one. We eliminated the coding columns on this Wave because data was provided to us in a spreadsheet format. Once again, we asked that the keypuncher skip over the open-ended questions, punch "-1" for "no response" and punch each questionnaire twice to verify the entries.

We received a floppy disk with the data along with a hard copy. Upon receiving it we randomly chose 10 questionnaires and checked that each was punched without any errors.

4.8.8 Editing

Every questionnaire was edited by the Project Manager.

4.8.9 Transcribing

For this Wave, we asked the transcriber to revise her cost estimate from Wave 1 because there were fewer open-ended questions on both the Auditions as well as the Callbacks, which she did. We gave the transcriber the interviews in three different batches, the Auditions first, then the Callbacks, then the Telephone interviews. Because the Callbacks and Auditions had the same interview number we asked that she precede all the Callback file names/numbers with a "CB." Once again we randomly selected a few of the transcripts and checked them carefully.

Labor Costs

The total labor cost for administering, keypunching and transcribing the Wave II questionnaires are outlined below:

Task	Quantity	Rate	Cost
Interviewers (Training and Interviewing)	223.00 hrs.	$10/hr.	$2,230.00
Keypunching	283	.80/interview	$ 226.40
Transcribing	283	$5.45/interv. (average)	$1,542.35
TOTAL			**$3,998.75**

The average cost per interview was: $14.13. Travel costs have been omitted. Administrative costs are estimated as before. 40 hours. recruitment and training. 40 hours. management of data entry. 120 hours supervising on site interviews and 80 hours supervising telephone interviews. At 30% fixed and 70% variable, the 280 hours covered 14 services.

Cost per service = 78 hrs. + N/14 * 280
= 80 hrs.

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Studying The Cost and Value of Library Services

Part 3: A Manual for Replication of These Studies

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2 PREPARATION FOR A STUDY

The purpose of this manual is to assist you in conducting a cost/benefit analysis of user services in your library. With the explosive growth of computer and telecommunications technology, libraries will need to make planning and allocation decisions concerning both new and old modes of access to information. We have designed this study for those situations in which the new and old ways of providing this service are so radically different that the only way to assess them is by looking at their impact on the user. It is designed to assist in the decision-making process rather than as a study to be undertaken for its own sake.

2.1 Recruitment

For some of the services you will want to study (i.e. in-person reference) you will be able to interview users on-site at the library. In these cases, it is a good idea to complete an Impact Study Feasibility Report. (See Appendix F). Be aware that sometimes librarians are uncomfortable with the research process and may feel threatened having an interviewer in the reference area. Do your best to reassure them that the purpose of the study is not to evaluate them, but rather, to determine the costs and benefits of the service.

For other services that are delivered electronically, or in response to a written or electronic request (i.e. ILL, Materials Delivery Service, etc.) you will need to recruit volunteers via computer or by distributing forms or postage-paid postcards at the time the request is made, or at the pick-up point. (See Appendix F for examples of these recruitment forms) and then interview the users by telephone.

For all services it is important to determine whether there are enough users to get the number of completed interviews you desire. We suggest you aim for no fewer than 50 completes per service.

We discovered that interviews with on-site users of reference or reserve services (either in-person or electronic) at main libraries of large institutions yielded completion rates of about 1 per hour. Interviews at small, branch libraries and special collections of larger systems were less successful.

For services such as materials/document delivery or ILL, for which you need to recruit volunteers, you will need to motivate staff to encourage users to volunteer. To obtain volunteers electronically through an online recruitment message, it is important to post the notice in a highly visible place on the menu. We were able to complete over 2 interviews per hour by telephone.

2.2 Master schedule

Prior to undertaking this project, we suggest you prepare a Master Schedule, as follows:

Task	Number of Weeks
Recruiting and hiring interviewers	6
Writing questionnaires	6
Pretesting questionnaires	6
Writing instructions/Preparing forms	6
Duplicating questionnaires, instructions, forms, manual, etc.	6
Training Interviewers (including preparation)	1
Interviewing in-person/Phone*	2
Interviewing - Callbacks	3
TOTAL (activities overlap)	18

*If you are conducting phone interviews, you will need to begin recruiting 2 weeks prior to when you plan to begin interviewing. Thus, from start to finish the conduct of an impact assessment study will span 12 weeks, prior to analysis and interpretation of the data.

2.3 Hiring interviewers

One of the first steps is to recruit and hire an interviewing staff. To begin, prepare a recruitment announcement on your letterhead. Be sure to include:

1. A brief description of the study and its sponsor.
2. The qualifications you are seeking.
3. The approximate number of hours and dates the interviewer will work.
4. The location.
5. The wages you will pay.
6. The telephone number and address to which you would like the interviewers to respond.
7. Your affirmative action policy.

Appendix F contains an example of a recruitment announcement.

Once the announcement has been prepared, post it in areas where you think it will be most effective in attracting promising candidates. We had our greatest success with undergraduate journalism students and communications and library science graduate students. Those recruited via the campus-wide employment office (particularly undergraduates) proved less reliable, as did students of the humanities.

Give each applicant who contacts you an application form with a letter instructing them where to return it and, if appropriate, a cutoff date. In addition to the standard questions about education and experience, we suggest including the following questions on the application form:

1. Willingness to attend the training session.
2. Willingness to work the required number of hours.
3. Availability.
4. Maximum and minimum number of hours they are willing to work.
5. A request for a writing sample.

Appendix F contains examples of a cover letter and an application form.

The next step is to schedule appointments with those who seem promising. It is a good idea to schedule them at least a half hour apart so you can record comments on the application form while they are still fresh in your mind.

During the interview, you may wish to ask the applicant to elaborate on the following:

Any interviewing experience (if relevant)

Other work experience
Academic status
Availability
Preference for phone vs. in-person interviewing
Maximum and minimum number of hours they are willing to work
Knowledge of libraries
Personal interests (to get a sense of their personality)
Availability of a home telephone or email address - (this is essential so that if you need to contact them about a scheduling change, interviewing problem, etc. you can reach them)

In addition, also note the applicant's degree of eye contact, friendliness, professionalism, assertiveness and overall presentation, then record any comments on the application form.

Once all the applicants have been interviewed and you have determined how many interviewers you will need (see Scheduling Interviewers) select the most promising based upon their qualifications and presentation and send them letters offering them the position. (It is a good idea to hire one substitute interviewer as a backup.) In the letters, include their schedule, their rate of pay and what you will expect from them. (Be sure the substitute knows what his or her role will be.) Also include a copy of the letter for them to sign and return if they accept the position. Appendix F contains an example of a job offer letter.

3 THE METHODOLOGY/THE QUESTIONNAIRE

To determine the long-term impact or benefit of the services, we suggest one of two methodologies, depending upon the nature of the service. For services in which the user can be approached on-site after using this service, we recommend an initial "Audition" interview followed by a "Callback" two weeks later. For those services for which the user is at a remote location or for which there is a delay between when the service is requested and when it is delivered (ILL, Materials Delivery, etc.), we recommend a "Phone" interview two weeks after the individual has used the service. This Phone Questionnaire contains questions from both the Audition and the Callback. (See Appendix A for examples of these Questionnaires).

3.1 Selection of Subjects. Customization of Instruments.

In either case, you will first need to determine who you will include in your study -- faculty, graduate students, undergraduate students, and/or non-university affiliated users. Once this is determined, the Screening Question A (Q.A) on page 1 of the Audition and the Phone Questionnaire is modified as appropriate. For those individuals who qualify, the interviewer is instructed to continue on to the next question. For those individuals who do not, the interviewer is instructed to terminate the interview and tally the disposition (see below). Also, in Q.A, replace SCHOOL with the name of your institution.

For the remainder of the questionnaire, replace S with the name of the service you are studying.

Q.B has been included so that you do not interview the same individual more than once.

All potential respondents must be notified that you are tape recording the interview but that their responses will remain confidential. Then, have the interviewer record the interview number on the tape before beginning (so as to avoid any possibility of not being able to match the questionnaire with its corresponding tape). For in-person interviewing, we have found it necessary in the majority of cases to ask the respondent to hold the recorder themselves to ensure the tape is audible for the transcriber.

Note that throughout the questionnaire, all interviewer instructions are printed in capital letters and critical instructions are emphasized in bold print.

3.2 The Audition Interview

At the end of the Audition, the respondents are asked if they are willing to be called back. If they agree, their name, telephone number and availability are recorded on the last page. Once the interview has ended, their status (response to the screening question) and a synopsis of their information "problem" are also recorded and the response to Q.3 is circled in the top right corner of page 1.

If the respondent is willing to be called back and he or she found the service at least somewhat helpful (a 3,4,5,6, or 7 to Q.3), the last page is detached and placed in the pile to be called back.

3.3 The Callback Interview

This is the instrument to use when calling back the qualifying Audition respondents. In the introduction, the interviewer inserts the service name on the first blank line and then describes the project from the synopsis written during the Audition. From there the Callback follows the questionnaire. It is numbered with the same number as its corresponding Audition.

3.4 The Phone Interview

For the Phone interviews, you will have received the names and telephone numbers of volunteers who contacted you electronically or by telephone. That information should either be transferred or stapled to a Call Disposition Form (see below). The calls are made from these forms and according to the questionnaire.

3.5 A Note about the Questionnaire

The questions contained in this Questionnaire have been created, and ordered to obtain information on the benefits of library services. They have been tested in numerous libraries and have been designed using basic survey research question writing principles. If you choose to add or modify a question, please keep in mind that you should refrain from using library jargon, be sure to avoid vocabulary that is value-laden or has double meanings, be careful to word questions unambiguously and use an 8th grade sentence structure. Also, be sure to offer respondents both options when asking a question. For example; "Has what you got from using the service on that occasion had an impact on your project or has it had no impact?" Do not be concerned if questions look very similar to one another, except for an important phrase that differs slightly. Generally, it is a good idea to put open-ended questions prior to closed-ended questions. Also, keep in mind that interviewers have different styles. They should be expected to exercise very little judgment while administering the questionnaire. Any instructions should be written clearly. Finally, the physical layout of the questionnaire should be designed to make it as easy as possible for the interviewer to read and proceed from question to question.

Once the Questionnaire has been designed, it is a good idea to pretest it on a subpopulation of your sample -- we suggest at least two interviews with someone in your office or a personal acquaintance, to catch any glaring errors, and then another 10 interviews with actual respondents. Use that opportunity to correct any typographical errors or make any changes that seem appropriate.

Once the Questionnaire has been pretested and finalized, you will need to reproduce it. If you are studying more than one service, you should first give every service a number and pre-circle that number on the Service line at the top right hand corner of the questionnaire. If you are conducting the study in more than one library, you will need to assign a code for each Library and pre-circle the appropriate code for each one. If you are studying more than one aspect of a particular service, you may need to assign Version codes as well. Also, if you are unable to produce them with your word-processor, be sure to draw any lines with arrows indicating a skip pattern, prior to reproducing the questionnaire. Finally, we suggest that you use different colored paper for reproducing the Audition, the Callback, and the Phone interviews, to easily distinguish them from one another.

Once they are reproduced, you will need to prenumber the Audition and Phone interviews. Starting with 1, continue on consecutively for as many interviews as you will be conducting. The number on the Callback interview will correspond to the number on the respective Audition interview. Therefore, you will need to wait until after the Callback has been completed to put the interview number on the Callback.

4 QUESTIONNAIRE INSTRUCTIONS

For each questionnaire you will need to prepare a set of Questionnaire Instructions. These instructions explain to the interviewer how to administer every question on the questionnaire. Appendix H contains examples of instructions for the questionnaires in Appendix A.

5 PROJECT MANAGEMENT

5.1 Human Subjects Protection

If your institution has a policy regarding the Protection of Human Subjects in Research, you will need to contact them to determine the policy and procedures for compliance.

5.2 Scheduling Interviewers

In order to schedule the interviewers you will first need to determine how many interviews you will be completing and in what time period you expect to complete them. Depending upon the sample you wish to study, you may want to limit interviewing to weekdays.

To schedule the in-person interviews, prepare one chart with the interviewers' availability and another with information about the best time to interview (from the Impact Study Feasibility Report). Once all this information is assembled, taking into consideration all the different factors, develop a schedule.

Scheduling the telephone interviews is somewhat easier. Divide the day into three shifts: 9-12:00, 1-5:00, and 6-9:00. Then, review the interviewers' availability and assign two interviewers to each time slot --one interviewer and one backup and tell the interviewers it is their obligation to call their backup person if they cannot make their shift. Appendix F has an example of a schedule. It is a good idea to give each interviewer an Interviewing Assignment/Schedule. Appendix F contains an example. If there is a possibility that you will not have enough work for every time slot, have the interviewers phone you prior to their shift to ask if they should come in.

In principle several telephone interviews can work at the same time. However, you must be sure that they will be acoustically isolated so that each is not distracted.

5.2.1 Equipment; Supplies

To tape the interviews, we recommend a portable cassette recorder. (We were very satisfied with the Sony Model TCM-S64V which costs approximately $30.) For the telephone interviews we suggest attaching a microphone to the telephone ear-piece and to a desk-top cassette recorder. Most electronic stores carry microphones of varying qualities. We suggest you purchase the best quality you can afford because it will be reflected in the recording.

In addition to the recorders, you will need the following supplies for each interviewer:

4 AA batteries (2 for the recorder and 2 extra)

A clipboard
A name tag
Pencils (5-10)
A portable pencil sharpener
Cassette tapes (1 hour tapes - 30 minutes/side)

5.2.2 Tally Sheets

For the in-person interviewing, every interviewer should maintain a Tally Sheet for every shift worked. On the Tally Sheet, the interviewers are to mark in the appropriate box, (with a tick mark) the outcome of every approach they make while they are interviewing, using the following guidelines:

Ineligible respondent: an individual who does not qualify for the study based upon responses to the questions on page 1 of the questionnaire.

Incomplete: an interview terminated by the respondent before completion. (The interviewer actually wrote on the questionnaire from Q.1 on and then the respondent terminated).

Interviewer terminate: an interview terminated by the interviewer because of the language problem, hearing problem, etc.

Refusal: a potential respondent who refused to be interviewed after being approached.

Complete: an interview in which the respondent's answers have been recorded on the questionnaire and on the tape recorder along with the interview number.

The interviewer should bring this Tally Sheet with the completed interviews to you after every shift. With this Tally Sheet, you will be able to track the number of completed interviews per hour; this will help you to determine whether or not your are on budget. Appendix F contains examples of a Tally Sheet and an Interview Tracking Form for you to record the necessary figures.

5.3 Reviewing

After the first day's interviewing it is important to listen to as many of each interviewer's tapes as possible so that you can determine if he or she is administering the questionnaire verbatim and is probing thoroughly enough. Also, it is advisable to review the written questionnaires to make sure they are being completed properly. Be sure the corresponding number is circled, not the response itself. For example, on a yes/no question, the 1 or the 2 should be circled, not the "yes or the "no". (This will help lower your keypunching costs.) If you discover any problems, address them with the interviewer immediately so that he or she can correct them. If you have an interviewer with a particular problem you may want to continue this procedure for the next couple of days. If not, we recommend that you take a sample of each interviewer's work on a daily basis just to be sure that everything is proceeding smoothly.

5.3.1 Editing

In addition to reviewing each interviewer's work, you will need to edit every questionnaire that is returned to you. This means checking to see that the questionnaire was filled out completely and accurately; drawing a slash through any skipped questions to help increase the keypuncher's speed; and coding the area study/department question. Guidelines for coding the area of study/department question are provided in Section 6 of this manual.

5.3.2 Telephone Interviewing

For the telephone interviews, the disposition of each call needs to be recorded on a Call Disposition Form so that you know the outcome of every call made to every respondent. For the Callbacks, the Call Disposition Form is on the last page of the questionnaire with the respondent's phone number and synopsis. For the Phone interviews, it is the sheet where the respondent's name and telephone number are recorded. (see Appendix F-11). On both forms, there is a set of codes at the bottom for each type of outcome. You will need to prepare a set of Telephone Interviewing Instructions such as the ones in Appendix H5-1 and Appendix H5-2.

In our experience, 30% of all contacts resulted in a completed interview. About 70% of all Auditions resulted in successful Callbacks. For the Callback and Phone interviews, 17-19% of all calls resulted in a complete. Over half (54-57%) of the calls reached an answering machine.

5.3.3 Tracking, Callback and Phone Interviews

To track the progress and status of the Callback and Phone interviews, we recommend that you prepare a sheet of all the interview numbers for the Auditions that qualify to be called back. Then, as the Callback interviews are completed, cross them off so that at any given time you will know how many interviews are outstanding. You can do the same for the Phone interviews as well. Appendix F.11 contains an example of the type of sheet to which we are referring.

5.3.4 Keypunching

Once the interviewing has been completed, you will need to have the responses to the closed-ended questions keypunched by a professional keypuncher. To find one, we advise you to obtain a referral. The keypuncher will need a copy of the questionnaire, a list with each question and the variable name you have assigned to each question, and the acceptable ranges of responses for each question. In addition, you will need to tell them what to punch for a "no response". We suggest a "-1". Also, we advise that you have them punch all entries twice in order to verify that they have been punched correctly. Finally, have them give you the responses in a spreadsheet format on a clearly labeled disk . Most statistical analysis programs can convert data from this format, and it is very convenient for checking and editing. Once you receive the disk, make a duplicate copy immediately and store it in a safe place. Our keypunching cost was $.80 per questionnaire.

5.3.5 Transcribing

In addition to keypunching the closed-ended questions, you will also need to have the responses to the open-ended questions transcribed by a professional transcriber so that you can code the responses. Again, it is best to obtain a referral in order to find someone reputable. It is important that this person type the responses verbatim and not paraphrase or insert any comments of his or her own. (See the end of this manual for an example of a transcription.) You may wish to have them transcribe a few and listen to them to make sure they are acceptable. We recommend that you have the transcriber give you a hard copy of every transcript as well as a disk with every interview labeled with: the interview number; a code such as "A" for Audition, "CB" for Callback or "P" for Phone; and any other relevant data such as the service name, etc. The transcriber's estimate will be based upon the number of open-ended questions; therefore, you will need to get different estimates for the Phone interview, the Callback, and the Audition. Our average cost for all three was $5.45 per interview.

6 TRAINING

Before the interviewing begins, the interviewers need to learn interviewing skills and to become familiar with the questionnaire itself. This can be accomplished in a 2 - 2 1/2 hour training session scheduled at a time when every interviewer (including the substitute) can attend. (See responses to the appropriate question on the application form). Because the training session is mandatory, interviewers should be paid for this time.

For the training session you will need an overhead projector with overhead slides of the Questionnaire and the Tally Sheet, a tape recorder, a tape recording of a respondent answering question 1 on the Audition and Phone Questionnaires and the following items to distribute to the interviewers:

Interviewing Training Manuals (see Appendix H)
Examples of the questionnaires with accompanying instructions
Tally Sheets
Time Sheets (see Appendix F)
Interviewer Assignments/Schedules for each interviewer
Equipment/supplies for each interviewer
General Rules
An example of a synopsis (see the end of this manual.)

While the interviewers are arriving, distribute the materials so they can review them prior to the session.

Presented below is an agenda for the training session:

6.1 Welcome - 5 minutes

Thank the interviewers for attending, describe the study's purpose and the interviewer's role. Emphasize the two main points:

1) Probe open-ended questions.
2) Be sure all interviews are taped and audible.

6.2 Questionnaire Familiarization - 10 minutes

Have interviewers pair up and, with one person playing the role of respondent and the other the role of interviewer, have them read half the questionnaire to their partner, then, midway through, switch roles. This exercise gives the attendees first hand experience with the Questionnaire so the remainder of the session is more meaningful to them.

6.3 Interviewing - 45 minutes

Review in detail the most important concepts from the Interviewer Training Manual citing examples where appropriate and emphasizing the following:

Interviewing is one of the most important aspects of the study because without it there are no data, and there are certain procedures an interviewer can follow to guarantee we get high quality, accurate and valid information. They are:

- Develop rapport.
- Read the questionnaire as written.
- Know the different types of questions.
- Probe for the most specific response.
- Know how to handle a "don't know/refusal".
- Edit the questionnaire.

During the discussion about probing we suggest demonstrating the technique by asking some of the interviewers questions (i.e. Why did they choose their major?, Why did they attend the training session?, etc.) and probing their responses. It is a good idea to follow this up by having one interviewer question another and then critiquing their probing skills.

Finally, have the attendees turn to page 1 of the Training Manual and, in turn, read the Summary Points aloud.

Remind interviewers to read the Training Manual on their own before their first shift.

6.4 Break - 5 minutes

6.5 Questionnaire Instructions/Tally Sheet - 30 minutes

The first step in reviewing the questionnaire is to call the interviewers' attention to their unique interviewer number which should appear on their Interviewing Assignment/Schedule. Also, note that each questionnaire has been prenumbered.

Once these topics have been covered, project the overhead slide of the questionnaire. After reviewing the information to be recorded int the top, right, corner, have an interviewer read the first question from the questionnaire, then you read the instructions from the Questionnaire Instructions and demonstrate on the overhead how to record the response. Repeat for each question.

When illustrating how to write a synopsis, play the recording of the simulated interview and review the example of the synopsis with the attendees.

6.5.1 General Rules/Time Sheet - 20 minutes

Ask each interviewer to look over the General Rules while you review them:

1. Use only pencil when interviewing.
2. Be sure the microphone is near the interviewer's mouth.
3. Wear your nametag at all times.
4. Dress neatly/professionally.
5. Try to obtain as many completes during each shift as possible.
6. Be aware of screening requirements.
7. Practice interviewing with a friend, spouse, roommate, etc. before your first shift.
8. Write the interview numbers on the tape.

In addition you may want to address the following:

9. How to operate/program the tape recorder (i.e. VOR in the "Off" position, sensitivity on "High").
10. How many interviews to record on each side of the tape. (We recommend one per side to eliminate any chance of the tape running out during the interview).
11. What to do when arriving at the interviewing site (i.e. introduce themselves to the librarian/staff on duty).
12. What to do if a question arises at the interviewing site (contact you).
13. What to do with the completed interviews after the shift. (We recommend bringing them to your office no later than the following day.)
14. What to do in case of an illness or emergency.
15. For telephone interviewing: what to do in case there is no work (have interviewers call the day before their scheduled shift).

Also, go over how to fill out a Time Sheet and advise interviewers that they will be paid after all equipment, including unused tapes, has been returned. Tell interviewers how and where to reach you if necessary.

6.5.2 Practice Interviewing - 10 minutes

Have the interviewers pair up and conduct one taped interview each with their partner.

6.5.3 Closing

Thank interviewers for attending. Before they leave, have them pick up their requisite number of cassette tapes (their quota of completed interviews divided by 2 plus 5 extra) and record how many they took on a sign-up sheet.

7 CODING RULES FOR DEPARTMENT/AREA STUDIES

Humanities

History
Classics
Art History
English
Foreign Languages
English Literature
Film/Cinema Studies
Religion
Philosophy
Drama
Near Eastern Studies
Musicology
Ethnomusicology

Social and Behavioral Science

Sociology
Geography (Human Ecology)
Political Science
Public Affairs
Communications
Anthropology
Economics
Psychology
International Affairs
Public Policy
Political Economy

Natural or Physical Science

Biology
PreMed
Math
Chemistry
Physics
Radiation Science
Information Science
Environmental Studies
Natural Resource Ecology

Engineering

Any type of Engineering

Professions

Nursing
Education
Library Science
Social Work
Management
Policy Management
Business Finance
Law
Architecture
Health Science
Physical Therapy
Leisure Studies
Interactive Telecommunications
Journalism
Pharmacy
MBA
Museum Studies
Criminal Justice
School Counseling
International Business
Labor and Industrial Relations
Urban Studies
Public Administration
Marketing

Other

Undecided/Undeclared
Music Performance
Computer Science
Health Economics
Technical Communications Writing
Nutrition
Hispanic Civilization
Writing
Middle East Studies
Policy Studies
Speech Communication
Public Health
Environmental Policy
Drug Prevention and Evaluation
Nursing Theory Research and Development

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APPENDIX A
Instruments and SPSS Codes

A.1. Wave 1 . . . . First Version
A.2. Wave 1 . . Revised Version (1.2)
A.3. Wave 2 . . . . Audition
A.4. Wave 2 . . . . Callback
A.5. Wave 2 . . . . Phone
A.6. Map of SPSS variables to questions

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Rutgers Alexandria Project Lab Cost Benefit Study 1994
Paul B. Kantor and Tefko Saracevic, Principal Investigators
Appendix A

Rutgers Alexandria Project Cost/Benefit Study
QUESTIONNAIRE Wave I

$A $B
[Replace $A by name of school]
[Replace $B by name of service]

Interviewer #__________ [1,2]

Interview #__________ [3-5]

Time Started__________

Edited __________

Coded __________

Library 1 2 3 4 5 [6]

Service 1 2 3 [7]

Version 1 2 3 4 [8]

Hello, I'm __________________ from the School of Communication, Information and Library Studies at Rutgers University and we are conducting a study of library usage.

A. Which of the following best describes you? (READ LIST)

A(n) $A faculty or staff member (GO TO Q.B)...........1
A(n) $A graduate student (SEE BELOW)..................2
A(n) $A undergraduate student (TERMINATE AND TALLY)...3
Or another type of library user (TERMINATE AND TALLY) [9]

(LOOK TO SEE IF THERE IS A FACULTY MEMBER IN THE VICINITY.
IF YES, TERMINATE, RECORD AND WAIT TO APPROACH FACULTY MEMBER.
IF NO, AND 5 MINUTES HAVE PASSED SINCE YOUR LAST COMPLETED INTERVIEW, GO TO Q.B
IF NO AND LESS THAN 5 MINUTES HAVE PASSED SINCE YOUR LAST COMPLETED INTERVIEW, TERMINATE AND TALLY)

B. Have you been interviewed about using $B in this library within the past three weeks?

Yes (TERMINATE AND TALLY)
No (CONTINUE)

I will need to tape record this interview. However, your identity will remain completely annonymous.

TURN ON RECORDER AND RECORD: This is interview #______.

(IF NECESSARY:) Please would you hold this recorder? Thank You.

3. Using a scale from 1 to 7 where 1 means not at all familiar and 7 means very familiar, how would you rate your familiarity with this library?

not at all familiar						very familiar	no response	
1	2	3	4	5	6	7	0	*[10]*

4. Using a scale from 1 to 7 where 1 means no experience and 7 means expert, how would you rate your experience with $B?

no experience						expert	no response	
1	2	3	4	5	6	7	0	*[11]*

5. How often do you use $B during a regular semester --less than once a month, once a month, 2-3 times a month, 4 times a month, or more than 4 times a month?

Less than once a month......	1	
Once a month................	2	
2-3 times a month...........	3	
4 times a month.............	4	
More than 4 times a month...	5	
No response.................	0	*[12]*

6. Why did you use $B today? (PROBE:) Can you tell me a little more about that? *[13-18]*

CHECK TO SEE THAT TAPE RECORDER IS ON.

7. Using a scale from 1 to 7 where 1 means not at all defined and 7 means very well defined, in your mind, how clearly defined was your reason for using $B?

not at all defined						very well defined	no response	
1	2	3	4	5	6	7	0	*[19]*

8. What did you get out of using $B today?(PROBE:) What would you say

was the value or benefit or impact of that for you?

[20-25]

CHECK TO SEE THAT TAPE RECORDER IS ON.

9. Using a scale from 1 to 7 where 1 means not at all successful and 7 means very successful, how successful were you in getting what you needed from $B?

not at all successful					very successful		no response	
1	2	3	4	5	6	7	0	*[26]*

10. What would you say is the reason you feel that way? (PROBE:) Why else? **CHECK TO SEE THAT TAPE RECORDER IS ON.** *[27-32]*

11. Using a scale from 1 to 7 where 1 means not at all confident and 7 means extremely confident, how confident are you that you can rely on the information you got from using $B?

not at all confident					extremely confident		no response	
1	2	3	4	5	6	7	0	*[33]*

12. Using a scale from 1 to 7 where 1 means not at all difficult and 7 means extremely difficult, please tell me how difficult was it for you to use $B?

not at all difficult					extremely difficult		no response	
1	2	3	4	5	6	7	0	*[34]*

13. About how much time did you spend using $B?

__________minutes/hours no response
1 2 0 *[35-37,38]*

14. Using a scale from 1 to 7 where 1 means definitely not worth the time and 7 means definitely worth the time, how does the benefit you got from using $B compare with the time you spent using it?

definitely not worth it					definitely worth it		no response	
1	2	3	4	5	6	7	0	*[39]*

15. If you were to put a dollar value on the benefit you got from using $B today, what would it be?

$__________.00   no response
0   [40-44]

16. If $B were not available at this library, is there something else you could have done to get this same benefit?

Yes.(CONTINUE TO Q.17)......1
No.(SKIP TO Q.21)...........2
No response.(SKIP TO Q.21)..3   [45]

17. What would you have done? (PROBE FOR SPECIFICS) **CHECK TO SEE RECORDER IS ON.**   [46-51]

18. Using a scale from 1 to 7 where 1 means not at all convenient and 7 means very convenient, how convenient would it have been for you to go somewhere else for this service?

not at all convenient					very convenient		no response	
1	2	3	4	5	6	7	0	[52]

19. How much time would it have taken you to get that same benefit if $B were not available?

__________ minutes/hours/days/weeks   no response
1 2 3 4   0   [53-55,56]

20. What would it have cost you, in dollars, to get the same benefit without using $B?

$__________.00   no response
0   [57-61]

21. If 100 represents the best possible experience with $B that you could imagine, and 0 represents the worst, what score would you give for the way it actually turned out?

____ ____ ____(THIS NUMBER MUST BE BETWEEN 0 AND 100)   [62-64]

22. Why did you choose that score? (PROBE:) Why else?   [65-70]

I have just a few more questions.

23. (FOR STUDENTS:)What is your area of study?

____________________   INTERVIEWER DISREGARD:

Humanities...........1
Social Science.......2
Natural Science......3
Engineering..........4
Professions..........5
Other................6 *[71]*

(FOR FACULTY/STAFF:) With what department are you affiliated?

____

INTERVIEWER DISREGARD:
Humanities...........1
Social Science.......2
Natural Science......3
Engineering..........4
Professions..........5
Other................6 *[72]*

24. Which of the following categories best describes your age? (READ LIST)

Under 18.............1
18-25................2
26-29................3
Thirties.............4
Forties..............5
Fifties..............6
Sixties or above.....7 *[73]*

(DO NOT READ) No response..........0

Thank you very much for your help.

TURN OFF TAPE RECORDER

****

Interviewer please record:

Respondent's gender: Male..........1
Female........2 *[74]*

Time ended ______________

Time began ______________

Interview length______________

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Rutgers ALexandria Project Cost/Benefit Study
QUESTIONNAIRE WAVE 1.2

Date ______________/94

Interviewer # ________ [1-2]

Interview # __________ [3-5]

Time Started__________

Coded __________

Library 1 2 3 4 5 [6]
Service 1 2 3 [7]
Version 1 2 3 4 [8]

Hello, I'm _________________ from the School of Communication, Information and Library Studies at Rutgers University and we are conducting a study of library usage.

A. Which of the following best describes you? (READ LIST)

A __________________ faculty or staff member (GO TO Q. B).........1
A __________________ graduate student (SEE BELOW)..................2
A __________________ undergraduate student (TERMINATE & TALLY)....3
Or Another type of library user (TERMINATE & TALLY)..............4 [9]

(LOOK TO SEE IF THERE IS A FACULTY MEMBER IN THE VICINITY.
IF YES, TERMINATE, RECORD AND WAIT TO APPROACH FACULTY MEMBER.
IF NO, AND 5 MINUTES HAVE PASSED SINCE YOUR LAST COMPLETED INTERVIEW, GO TO Q.B
IF NO AND LESS THAN 5 MINUTES HAVE PASSED SINCE YOUR LAST COMPLETED INTERVIEW, TERMINATE AND TALLY)

B. Have you been interviewed about using___________________________ in this library within the past three weeks?

Yes (TERMINATE AND TALLY)
No (CONTINUE)

I will need to tape record this interview. However, your identity will remain completely anonymous.

Rutgers Alexandria Project Lab Cost Benefit Study 1994
Paul B. Kantor and Tefko Saracevic, Principal Investigators
Appendix A

TURN ON RECORDER AND RECORD: This is interview #______.

(IF NECESSARY:) Please would you hold this recorder? Thank You.

1. Why did you use __________________________________ today?
(PROBE:) Can you tell me a little more about that? *[10-15]*

CHECK TO SEE THAT TAPE RECORDER IS ON.

2. Using a scale from 1 to 7 where 1 means not at all defined and 7 means very well defined, in your mind, how clearly defined was your reason for using ____________________________________ today?

not at all defined					very well defined		no response	
1	2	3	4	5	6	7	x	*[16]*

3. What is the actual project or work that brought you to use this service today? Please use any technical terms you may need, and be as specific as possible. *[17-22]*

4. What did you get out of using __________________________________ today? (PROBE:) What would you say was the value or benefit or impact of that for you and for your work? *[23-28]*

5. On a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you got to your actual project or work?

not at all helpful						very helpful	no response	
1	2	3	4	5	6	7	x	*[29]*
GO TO Q.5c							GO TO Q. 6	

5a. In what way was this helpful to your project or work? *[30-35]*

5b. If you had not gotten what you did, how would it have hurt your project or work? *[36-41]*

GO TO Q.6

5c. In what way was it not helpful to your project or work? [42-47]

5d. Did it hurt your project or work in any way?

Yes 1
No (SKIP TO Q. 6)............2
No response (SKIP to Q. 6)...x [48]

5e. How did it hurt your project or work? [49-55]

6. Using a scale from 1 to 7 where 1 means not at all confident and 7 means extremely confident, how confident are you that you can rely on the information you got from using ________________________________ today?

not at all confident					extremely confident		no response	
1	2	3	4	5	6	7	x	[56]

7. What would you say is the reason you feel that way? (PROBE:) Why else? [57-62]

8. Using a scale from 1 to 7 where 1 means not at all difficult and 7 means extremely difficult, please tell me how difficult was it for you to use ________________________________ today?

not at all difficult						extremely difficult	no response	
1	2	3	4	5	6	7	x	[63]

9. About how much time did you spend using ______________________ __________ today?

__________minutes/hours 1 2 no response x [64-66,67]

10. Using a scale from 1 to 7 where 1 means definitely not worth the time and 7 means definitely worth the time, how does the benefit you got from using ________________________________ compare with the time you spent using it today?

definitely not worth it					definitely worth it		no response	
1	2	3	4	5	6	7	x	[68]

11. If you were to put a dollar value on the benefit you got from using ______________________________ today, what would it be?

$__________.00 no response x [69-73]

12. If ______________________________ were not available at this library, is there something else you could have done to get this same benefit?

Yes.(CONTINUE TO Q.12a)......1
No.(SKIP TO Q.16)............2
No response.(SKIP TO Q.16)...x [74]

12a. What would you have done? (PROBE FOR SPECIFICS) [75-80]

13. Using a scale from 1 to 7 where 1 means not at all convenient and 7 means very convenient, how convenient would it have been for you to get this same benefit in some other way?

not at all convenient						very convenient	no response
1	2	3	4	5	6	7	x

[81]

14. How much time would it have taken you to get that same benefit in some other way if ______________________________ were not available?

__________ minutes/hours/days/weeks no response
1 2 3 4 x [82-84,85]

15. What would it have cost you, in dollars, to get the same benefit without using ______________________________?

$__________.00 no response x [86-90]

16. If 100 represents the best possible experience with ______________________________ that you could imagine, and 0 represents the worst, what score would you give for the way it actually turned out today?

_____ _____ _____(THIS NUMBER MUST BE BETWEEN 0 AND 100) [91-93]

17. Why did you choose that score? (PROBE:) Why else? [94-98]

I have just a few more questions.

18. Using a scale from 1 to 7 where 1 means not at all familiar and 7 means very familiar, how would you rate your familiarity with this library?

not at all familiar						very familiar	no response	
1	2	3	4	5	6	7	x	*[99]*

19. Using a scale from 1 to 7 where 1 means no experience and 7 means expert, how would you rate your level of experience with ________________________________?

no experience						expert	no response	
1	2	3	4	5	6	7	x	*[100]*

20. How often do you use ________________________________ during a regular semester? (READ LIST)

Less than once a month......1
Once a month................2
2-3 times a month...........3
4 times a month.............4
More than 4 times a month...5

(DO NOT READ) No response................x *[101]*

21. (FOR STUDENTS:)What is your area of study?

(FOR FACULTY/STAFF:) With what department are you affiliated?

____

INTERVIEWER DISREGARD:

Humanities...........1
Social Science.......2
Natural Science......3
Engineering..........4
Professions..........5
Other................6 *[102]*

22. Which of the following categories best describes your age? (READ LIST)

Under 18.............1
18-25................2
26-29................3
Thirties.............4
Forties..............5
Fifties..............6
Sixties or above.....7 *[103]*

(DO NOT READ) No response..........x

Thank you very much for your help.

TURN OFF TAPE RECORDER

****

Interviewer please record:

Respondent's gender: Male..........1
Female........2 *[104]*

Time ended ______________

Time began ______________

Interview length______________

Rutgers Alexandria Project Cost/Benefit Study
QUESTIONNAIRE WAVE II-AUDITION

S
[Replace $$$ with name of service]

Date ________________/94

Interviewer # __________

Interview # ___________

Time Started____________

Library	1	2	3	4	5
Service	1	2	3		
Version	1	2	3	4	

Q.3 1 2 3 4 5 6 7 -1

Hello, I'm _________________ from the School of Communication, Information and Library Studies at Rutgers University and we are conducting a study of library usage.

A. Which of the following best describes you? (READ LIST)

A SCHOOL faculty or staff member (GO TO Q. B) 1
A SCHOOL graduate student (SEE BELOW) 2
A SCHOOL undergraduate student (TERMINATE & TALLY) 3
Or Another type of library user (TERMINATE AND TALLY) 4

(LOOK TO SEE IF THERE IS A FACULTY MEMBER IN THE VICINITY.
IF YES, TERMINATE, RECORD AND WAIT TO APPROACH FACULTY MEMBER.
IF NO, AND 5 MINUTES HAVE PASSED SINCE YOUR LAST COMPLETED INTERVIEW, GO TO Q.B
IF NO AND LESS THAN 5 MINUTES HAVE PASSED SINCE YOUR LAST COMPLETED INTERVIEW, TERMINATE AND TALLY)

B. Have you been interviewed about using S in this library within the past three weeks?

Yes (TERMINATE AND TALLY)
No (CONTINUE)

I will need to tape record this interview. However, your responses will remain completely confidential.

TURN ON RECORDER AND RECORD: This is interview #______.

(IF NECESSARY:) Please would you hold this recorder? Thank You.

1. What is the actual project or work that brought you to use S today? Please use any technical terms you may need, and be as specific as possible. (PROBE:) Can you tell me a little more about that?

CHECK TO SEE THAT RECORDER IS ON

2. Using a scale from 1 to 7 where 1 means not at all defined and 7 means very well defined, in your mind, how clearly defined was your reason for using S today?

not at all defined					very well defined		no response
1	2	3	4	5	6	7	-1

3. On a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you got to your actual project or work?

not at all helpful						very helpful	no response
1	2	3	4	5	6	7	-1
		SKIP TO Q.4					

3a. In what way was it not helpful to your project or work? (PROBE FOR SPECIFICS)

3b. Did it hurt your project or work in any way?

Yes 1
No (SKIP TO Q. 4).............2
No response (SKIP to Q. 4)...-1

3c. How did it hurt your project or work? (PROBE FOR SPECIFICS)

4. Using a scale from 1 to 7 where 1 means not at all confident and 7 means extremely confident, how confident are you that you can rely on the information you got from using S today?

not at all confident					extremely confident		no response
1	2	3	4	5	6	7	-1

5. What would you say is the reason you feel that way? (PROBE:) Why else?

6. Using a scale from 1 to 7 where 1 means not at all difficult and 7 means extremely difficult, please tell me how difficult was it for you to use S today?

not at all difficult					extremely difficult		no response
1	2	3	4	5	6	7	-1

7. About how much time did you spend using S today?

________minutes/hours		no response
1	2	-1

In a few weeks, we would like to call you with some follow-up questions to see how this information worked out. May I have your name and telephone number and the best time to reach you?

(RECORD ON NEXT PAGE)

****

Interviewer please record:

Respondent's gender: Male..........1
Female........2

Time ended ____________

Time began ____________

Interview length____________

RECORD THE ANSWER TO Q.3 ON PAGE 1

RECORD STATUS AND WRITE A SYNOPSIS OF THE RESPONDENT'S PROJECT OR WORK ON THE NEXT PAGE

Interview #______________________

PLEASE WRITE CLEARLY

Name____

Telephone number__________________________________

Best time to reach (DAYS and TIMES):

____

____

Thank you very much.

TURN OFF THE TAPE RECORDER AND GO BACK TO THE QUESTIONNAIRE

****

STATUS:	Faculty/Staff.......1	Undergraduate student............3
	Graduate Student....2	Another type of library user.....4

Write the synopsis here: **(PLEASE WRITE CLEARLY)**

Rutgers Alexandria Project Cost/Benefit Study
QUESTIONNAIRE WAVE II-CALLBACK

S

Date ______________/94

Interviewer # ________

Interview # __________

Time Started__________

Library 1 2 3 4 5

Service 1 2 3

Version 1 2 3 4

Hello, I'm __________________ from the School of Communication, Information and Library Studies at Rutgers University. A few weeks ago, we interviewed you about using S to work on (DESCRIBE PROJECT). We would like to ask you a few more questions about that specific occasion.

I will need to tape record this interview. However, your responses will remain completely confidential.

1a. What did you get out of using S on that occasion? (PROBE FOR SPECIFICS)

CHECK TO SEE THAT RECORDER IS TURNED ON

1b. What would you say was the value or benefit or impact of that for you and for your work? (PROBE:) Can you tell me a little more about that?

2. On a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you got to your actual project or work?

not at all helpful						very helpful	no response
1	2	3	4	5	6	7	-1
GO TO Q.3							GO TO Q. 3

2a. In what way was this helpful to your project or work? (PROBE FOR SPECIFICS)

2b. If you had not gotten what you did, how would it have hurt your project or work? (PROBE FOR SPECIFICS)

3. Using a scale from 1 to 7 where 1 means definitely not worth the time and 7 means definitely worth the time, how does the benefit you got from using S compare with the time you spent using it on that occasion?

definitely not worth it					definitely worth it		no response
1	2	3	4	5	6	7	-1

4. Has what you got from using S on that occasion had an impact on your project or has it had no impact?

Has had an impact (CONTINUE)........1
Has not had an impact (SKIP TO Q.6).2
No response..(SKIP TO Q.6).........-1

5. On a scale of 1 to 7 where 1 means not at all important and 7 means very important, how important was that impact to your project or work?

not at all important					very important		no response
1	2	3	4	5	6	7	-1

6. If you were to put a dollar value on the benefit of what you got from using S, what would it be?

$____________.00 no response -1

7. Have you looked into the cost or price of another way to get what you got from S on that occasion?

Yes.....................1
No......................2
No response............-1

8. More generally, have you purchased any information services (either print or electronic) in connection with this project of yours?

Yes....................	1
No.....................	2
No response............	-1

9. For each of the following, please tell me whether you paid for the service with that type of funds (READ LIST AND RECORD BELOW):

	Yes	No
Your own personal funds...........................	1	2
Research funds....................................	1	2
Funds for the support of teaching.................	1	2
Other university funds............................	1	2
Some other funds (PLEASE SPECIFY)________________..	1	2

ASK FACULTY/STAFF ONLY (STUDENTS SKIP TO Q.12):

Thinking about the university in general...

10. Have you dealt with any of the following university-wide services within the past year? (READ LIST AND RECORD BELOW)

11. Using a scale from 1 to 7 where 1 means not at all important and 7 means very important, how important is (READ FIRST SERVICE MARKED "YES") to carrying out your work? (RECORD BELOW) How about (READ SECOND SERVICE MARKED "YES" AND RECORD RESPONSE BELOW)? (CONTINUE FOR EVERY SERVICE MARKED "YES")

	Q.10		Q.11						
	No	Yes	Not at All Import.					Very Import.	
Accounting.....................	1	2.....	1	2	3	4	5	6	7
Purchasing..............	1	2.....	1	2	3	4	5	6	7
Personnel......................	1	2.....	1	2	3	4	5	6	7
Libraries(DON'T READ FOR Q.10).	1	2.....	1	2	3	4	5	6	7
Maintenance	1	2.....	1	2	3	4	5	6	7
Computer or Networking Center..	1	2.....	1	2	3	4	5	6	7

Security........................1	2.....1	2	3	4	5	6	7
Some other service (Please Specify)________________________1	2.....1	2	3	4	5	6	7

I have just a few more questions.

12. (FOR STUDENTS:)What is your area of study? (RECORD ON LINE BELOW)

(FOR FACULTY/STAFF:) With what department are you affiliated? (RECORD ON LINE BELOW)

____

INTERVIEWER DISREGARD:

Humanities...........1
Social Science.......2
Natural Science......3
Engineering..........4
Professions..........5
Other................6

13. Which of the following categories best describes your age? (READ LIST)

Under 18.............1
18-25................2
26-29................3
Thirties.............4
Forties..............5
Fifties..............6
Sixties or above.....7

(DO NOT READ) No response..........x

Thank you very much for your help.

TURN OFF TAPE RECORDER

****

Interviewer please record:

Time ended _______________

Time began _______________

Interview length_______________

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Appendix A

Rutgers Alexandria Project Cost/Benefit Study
QUESTIONNAIRE WAVE II-PHONE

S
[Replace $$$ by name of service]

Date ________________/94

Interviewer # __________

Interview # ___________

Time Started____________

Library 1 2 3 4 5

Service 1 2 3

Version 1 2 3 4

Hello, I'm _________________ from the School of Communication, Information and Library Studies at Rutgers University. We are working with the Director of the SCHOOL libraries to study S. We hope you can spare a few minutes to answer some questions.

A. Which of the following best describes you? (READ LIST)

A SCHOOL faculty or staff member (GO TO Q. B)	1
A SCHOOL graduate student (SEE BELOW)	2
A SCHOOL undergraduate student (TERMINATE & TALLY)	3
Or Another type of library user (TERMINATE AND TALLY)	4

B. Have you been interviewed about using S within the past three weeks?

Yes (TERMINATE AND TALLY)
No (CONTINUE)

I will need to tape record this interview. However, your responses will remain completely confidential.

TURN ON RECORDER AND RECORD: This is interview #______.

1. Thinking about the last time you used S, what was the actual

project or work that brought you to use it? Please use any technical terms you may need, and be as specific as possible. (PROBE:) Can you tell me a little more about that?

CHECK TO SEE THAT RECORDER IS ON

2. Using a scale from 1 to 7 where 1 means not at all defined and 7 means very well defined, in your mind, how clearly defined was your reason for using S on that occasion?

not at all defined						very well defined	no response
1	2	3	4	5	6	7	-1

3a. What did you get out of using S on that occasion? (PROBE FOR SPECIFICS)

3b. What would you say was the value or benefit or impact of that for you and for your work? (PROBE:) Can you tell me a little more about that?

4. On a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you got to your actual project or work?

not at all helpful						very helpful	no response
1	2	3	4	5	6	7	-1
GO TO Q.4c							GO TO Q.4c

4a. In what way was this helpful to your project or work? (PROBE FOR SPECIFICS)

4b. If you had not gotten what you did, how would it have hurt your project or work? (PROBE FOR SPECIFICS)

4c. In what way was it not helpful to your project or work? (PROBE FOR SPECIFICS)

4d. Did it hurt your project or work in any way?

Yes 1
No (SKIP TO Q. 5).............2
No response (SKIP to Q. 5)...-1

4e. How did it hurt your project or work? (PROBE FOR SPECIFICS)

5. Using a scale from 1 to 7 where 1 means not at all confident and 7 means extremely confident, how confident are you that you can rely on the information you got from using S on that occasion?

not at all confident					extremely confident		no response
1	2	3	4	5	6	7	-1

5a. What would you say is the reason you feel that way? (PROBE:) Why else?

6. Using a scale from 1 to 7 where 1 means not at all difficult and 7 means extremely difficult, please tell me how difficult was it for you to use S on that occasion?

not at all difficult					extremely difficult		no response
1	2	3	4	5	6	7	-1

7. About how much time did you spend using S?

__________minutes	hours	no response
1	2	-1

8. Using a scale from 1 to 7 where 1 means definitely not worth the time and 7 means definitely worth the time, how does the benefit you got from using S compare with the time you spent

using it on that occasion?

definitely not worth it 1	2	3	4	5	6	definitely worth it 7	no response -1

9. Has what you got from using S on that occasion had an impact on your project or has it had no impact?

Has had an impact (CONTINUE).........1
Has had no impact (SKIP TO Q.11).....2
No response..........................-1

10. On a scale of 1 to 7 where 1 means not at all important and 7 means very important, how important was that impact to your project or work?

not at all important 1	2	3	4	5	6	very important 7	no response -1

11. If you were to put a dollar value on the benefit you got from using S, what would it be?

$___________.00   no response -1

12. Have you looked into the cost or price of another way to get what you got from S on that occasion?

Yes 1
No..................2
No response........-1

13. More generally, have you purchased any information sources (either print or electronic) in connection with this project of yours?

Yes..................................1
No. (STUDENTS SKIP TO Q.17)
    (FACULTY SKIP TO Q.15)...........2
No response (STUDENTS SKIP TO Q.17)
    (FACULTY SKIP TO Q.15).-1

14. For each of the following, please tell me whether you paid for the sources with that type of funds (READ LIST AND RECORD BELOW):

	Yes	No
Your own personal funds	1	2
Research funds	1	2
Funds for the support of teaching	1	2
Other university funds	1	2
Some other funds (PLEASE SPECIFY)________________	1	2

ASK FACULTY/STAFF ONLY (STUDENTS SKIP TO Q.17):

Thinking about the university in general...

15. Have you dealt with any of the following university-wide services within the past year? (READ LIST AND RECORD BELOW)

16. Using a scale from 1 to 7 where 1 means not at all important and 7 means very important, how important is (READ FIRST SERVICE MARKED "YES") to carrying out your work? (RECORD BELOW) How about (READ SECOND SERVICE MARKED "YES" AND RECORD RESPONSE BELOW)? (CONTINUE FOR EVERY SERVICE MARKED "YES")

	Q.15		Q.16						
	No	Yes	Not at All Import.						Very Import.
Accounting	1	2	1	2	3	4	5	6	7
Purchasing	1	2	1	2	3	4	5	6	7
Personnel	1	2	1	2	3	4	5	6	7
Libraries(DON'T READ FOR Q.15)	1	2	1	2	3	4	5	6	7

Maintenance 1	2.....1	2	3	4	5	6	7
Computer or Networking Center..1	2.....1	2	3	4	5	6	7
Security.......................1	2.....1	2	3	4	5	6	7
Some other service (Please Specify)________________________1	2.....1	2	3	4	5	6	7

I have just a few more questions.

17. (FOR STUDENTS:)What is your area of study? (RECORD ON LINE BELOW)

(FOR FACULTY/STAFF:) With what department are you affiliated? (RECORD ON LINE BELOW)

____

INTERVIEWER DISREGARD:

Humanities...........1
Social Science.......2
Natural Science......3
Engineering..........4
Professions..........5
Other................6

18. Which of the following categories best describes your age? (READ LIST)

Under 18.............1
18-25................2
26-29................3
Thirties.............4
Forties..............5
Fifties..............6

Sixties or above.....7

(DO NOT READ) No response.........-1

Thank you very much for your help.

TURN OFF TAPE RECORDER

****

Interviewer please record:

Respondent's gender: Male..........1
Female........2

Time ended ____________

Time began ____________

Interview length____________

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A.6. Code Book For the SPSS Data Set. The following tables show the correspondence between specific code names assigned in the data sets and the questions on specific instruments.

Rutgers Alexandria Project Lab Cost Benefit Study 1994
Paul B. Kantor and Tefko Saracevic, Principal Investigators
Appendix A

First Wave First Version (1.1)

Variable Name	Question #	Description
INTV		Interviewer #
SESSN		Interview #
LIBRY		Library
SERV		Service
VERSN		Version
STATUS	Q1	Best Describes
FAMLIB	Q3	Familiarity with library
FAMSER	Q4	Experience with reference services (RS)
FRESER	Q5	How often do you use services
x	Q6	Why did you use RS today
CLDEF	Q7	Clarity of definition for using RS
GETOUT	Q8	What did you get out of using RS today
SUCCES	Q9	Success at getting what you wanted from RS
x	Q10	Reason you feel that way
CONINF	Q11	Confidence in reliance in info from RS
DIFFIC	Q12	Difficulty in using RS
TIME	Q13a	Time spent
TMUNIT	Q13b	Unit of the time
TIMBEN	Q14	Benefit of use versus time spent using RS
VALDOL	Q15	Dollar value (whole $$$ only?)
ALTWAY	Q16	If RS not available, someplace else?
x	Q17	What would you have done?
ALTCON	Q18	Convenience to go elsewhere
ALTTIM	Q19a	Time elsewhere for benefit if RS unavail.
ALTTMU	Q19b	Unit of the time
ALTDOL	Q20	Cost to get benefit eleswhere (whole $$$)
GRADE	Q21	Experience with RS rating
x	Q22	Why did you choose score for (21)?
AREAST	Q23a	Area of study (Students Only)
DEPTMT	Q23b	Area of study (Faculty/Staff Only)
AGEGRP	Q24a	Best describes your age
GENDER	Q24b	Gender

Appendix A

Mapping of SPSS variables to questions.

Wave 1.2 Instrument

Variable Name	Question Number
Date	Date
INTV	Interviewer #
SESSN	Interview #
LIBRY	LIBRARY
SERV	SERVICE
VERSN	VERSION
STATUS	Best Describes
x	Q1
CLRDEF	Q2
x	Q3
x	Q4
HELPFL	Q5
x	Q5a
x	Q5b
x	Q5c
HURTFL	Q5d
x	Q5e
CONINF	Q6
x	Q7
DIFFIC	Q8
TIME	Q9a
TMUNIT	Q9b
TIMBEN	Q10
VALDOL	Q11
ALTWAY	Q12
x	Q12a
ALTCON	Q13
ALTTIM	Q14a
ALTTMU	Q14b
ALTDOL	Q15
GRADE	Q16
x	Q17
FAMLIB	Q18
FAMSER	Q19
FRESER	Q20

AREAST	Q21a
DEPTMT	Q21b
AGEGRP	Q22
GENDER	GENDER

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Appendix A

Instrument: Audition

Variable Name	Question Number
Date	Date
INTV	Interviewer #
SESSN	Interview #
LIBRY	Library
SERV	Service
VERSN	Version
x	Q3 Recap
Status	Best Describes
x	Q1
CLRDEF	Q2
HELPFL	Q3
x	Q3a
HURTFL	Q3b
x	Q3c
CONINF	Q4
x	Q5
DIFFIC	Q6
TIME	Q7a
TMUNIT	Q7b
GENDER	GENDER
LENGTH	Interview Length

An "x" indicates an openended response which was not directly coded by the keypuch service. Those codes were later assigned. Since we permitted up to 3 codes to be assigned to each open ended response, the variables were created in groups of three.

Instrument: Callback

Variable Name	Question Number
Date	Date
INTV	Interviewer #
SESSN	Interview #
LIBRY	Library
SERV	Service
VERSN	Version
x	Q1a
x	Q1b
HELPFL	Q2
x	Q2a
x	Q2b
TIMBEN	Q3
IMPACT	Q4
IMPORT	Q5
VLDOL	Q6
ANWAY	Q7
PURCHINF	Q8
PERSFUN	Q9a
RESFUN	Q9b
TEACHFUN	Q9c
UNIVFUN	Q9d
OTHERFUN	Q9e
ACCOUNT	Q10a
PURCHAS	Q10b
PERSON	Q10c
LIBRAR	Q10d
MAINTEN	Q10e
COMPUT	Q10f
OTHERSRV	Q10g
ACCTIMP	Q11a
PURCHIMP	Q11b
PERSIMP	Q11c
LIBRIMP	Q11d
MAINIMP	Q11e
COMPIMP	Q11f
OTHERIMP	Q11g

AREAST	Q12a
DEPTMT	Q12b
AGEGRP	Q13
LENGTH	Interview Length

Appendix A

Instrument: Phone

Variable Name	Question Number
Date	Date
INTV	Interviewer #
SESSN	Interview #
LIBRY	Library
SERV	Service
VERSN	Version
Status	Best Describes
x	Q1
CLRDEF	Q2
x	Q3a
x	Q3b
HELPFL	Q4
x	Q4a
x	Q4b
x	Q4c
HURTFL	Q4d
x	Q4e
CONINF	Q5
x	Q5a
DIFFIC	Q6
TIME	Q7a
TMUNIT	Q7b
TIMBEN	Q8
IMPACT	Q9
IMPORT	Q10
VALDOL	Q11
ANWAY	Q12
PURCHINF	Q13
PERSFUN	Q14a
RESFUN	Q14b
TEACHFUN	Q14c
UNIVFUN	Q14d
OTHERFUN	Q14e
ACCOUNT	Q15a
PURCHAS	Q15b
PERSON	Q15c

LIBRAR	Q15d
MAINTEN	Q15e
COMPUT	Q15f
SECUR	Q15g
OTHERSRV	Q15h
ACCTIMP	Q16a
PURCHIMP	Q16b
PERSIMP	Q16c
LIBRIMP	Q16d
MAINIMP	Q16e
COMPIMP	Q16f
SECURIMP	Q16g
OTHERIMP	Q16h
AREAST	Q17a
DEPTMT	Q17b
AGEGRP	Q18
GENDER	GENDER
LENGTH	Interview Length

Rutgers Alexandria Project Lab Cost Benefit Study 1994
Paul B. Kantor and Tefko Saracevic, Principal Investigators
Appendix A

Assignment of Session Numbers for Interviews in Wave 2.

Info Desk	1-4	Callback
Ref. Consult	5-8	Phone
Br1 REF	9-12	Callback
Br2 REF	13-16	Callback
Mat. Delivery Serv.	17-34	Phone
Art and Architecture	101-117	Callback
Biology	118-134	Callback
Psychology	135-150	Callback
Reference	201-225	Callback
Interlibrary Loan	226-230	Phone
OnlineCat Phone	301-313	Phone
OnlineCat Site	314-326	Callback
Science Doc. Delivery	327-331	Phone
Patents	401-416	Callback
Reference	417-433	Callback
Auto Ref.	434-450	Callback

APPENDIX B

Open Ended Coding

B1. The Empirical Taxonomy
Definitions of Codes, Example Detailed Instructions

B2. Map of Codes to Questions

B3. Map of Empirical Codes Derived Codes

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B1. Coding Scheme (Empirical Taxonomy) derived from the open ended responses. This scheme was developed primarily by Mr. Michael Wilk, working under the direction of Paul Kantor. Details of the process are given in Chapter 4 of the Report.

Detailed coding scheme for open ended responses. We present here the several scales that were developed and used. For example, the scale called "Reason" was applied to questions: Wave 1.2 Question 7 (W1.2Q7), to Wave 2 Phone Question 5 (W2PQ5) and so forth. The text of the question in each case assessed "What was the reason you gave the score you did regarding the confidence in relying on the information you got from the service?"

In the SPSS analysis of multiple responses, each response must be assigned an integer label. Those labels, which appear in the discussions in Chapter 4, are shown at the right margin. Thus, for the class "Choose", the response L3, "librarians/people were not helpful" was numerically coded as "13".

Choose: W1.2Q17. Why did you choose the score you did for the service you used?

Librarians/People

L1 - librarians/people, I was having problems getting my point across	11
L2 - librarians/people were helpful finding what I was looking for	12
L3 - librarians/people were NOT helpful finding what I was looking for	13
L4 - they (Librarians/people) weren't in my area of specialization	14

Time & Money & Efficiency

Q1 - saved time, quickly	21
Q2 - took too much time	22
Q3 - saved money	23
Q4 - more efficient, more easy, convenient, access from home	24

PR - Personal Reasons

PR1 - gave me a direction	30
PR2 - look it up myself	31

Physical Environment

P1 - good physical environment	41
P2 - bad physical environment	42

Got Something

G1 - got everything I wanted, needed, more than I thought, satisfied me , helpful 51
G2 - got MOST of the information 52
G3 - didn't get everything I needed, could have been more, couldn't give me everything I needed or wanted, no benefit 53

Equipment Performance
E1 - equipment does work well, easy to work with, well designed, is user friendly, fun 61
E2 - equipment doesn't work well, not easy to work with, not users friendly 62
E3 - I'm still learning how to use the equipment, the system 63

Done: W1Q17. Something else you could have done to get same benefit?

1 - **Do Nothing,** no, stayed with current information nothing, stuck with, without them, don't know	1
2 - Do more on my own in the Library (unassisted or manually)	
2A - gone through indexes	21
2B - randomly look around	22
2C - used an on-line (electronic) service	23
2D - gone through abstracts	24
2E - gone through readers guide	25
2F - manually used card catalog	26
2G - could have checked availability of book, check book out, browse the shelves	27
3 - Use other Library Services:	
3A - used interlibrary loan or recall	31
3B - librarian/info desk/reference librarian	32
4 - Could have used another library	
4A - could have used a Public Library	41
4B - could have used another University/College library	42
4C - by checking the computer system to see if it's available	43
5 - Could have gone to or contacted another place (OTHER THAN LIBRARY)	
5A - bookstore/record store/video store	51
5A1 - buy items (books, tapes, videos, magazines)	511
5A2 - rent items (books, tapes, videos, magazines)	512
5B - another computer facility	52
5C - my place of work, through the company, my department	53
6 - **Could have contacted PEOPLE outside the Library about where to go, see if I could borrow from**	
6A - friend	61
6B - professor/advisor/teacher	62
7 - **Other** or miscellaneous	7

Done2: W1.2Q12A. If the service were not available at this library, is the
re something else you could have done to get the same benefit? What would you have done?

P - had some people help them by talking to people somewhere	10
P1 - ask the reference desk/librarian/info desk	11
P2 - learned it in class	12
P3 - called the company	13
P4 - omitted	14
P5 - asked professor/advisor	15
P6 - pay someone money to do it	16
M - do it myself	20
M1 - did it by trial and error	21
M2 - spent time on the computer doing it myself	22
M3 - do nothing	23
I - use another information source:	30
I1 - information source: library of congress	31
I2 - information source: On-line service	32
I3 - information source: newspapers, periodicals, textbook	33
I4 - information source:Victor/card catalogue	34
I5 - information source: friend	35
I6 - information source: Public or unspecified Library	36
I7 - information source: University Library or University	37
I8 - information source: abstracts	38
I9 - different form of the information source : (i.e. print version, etc.)	39
I10- a place that points to another information source (i.e. Reference books, articles, books, indexes in books, etc.)	40
R1 - Use another research method	50
T - travel to another place (not specific) to use another or same kind of source:	60
T1 - omitted	61
T2 - omitted	62
T3 - another agency (not library)	63
T4 - another city/or city	64
L1 - use inter-library loan	70

Hurt: W1.2Q5B, W1.2Q5C, W1.2Q5E, W2CQ2B, W2PQ4B, W2PQ4C, W2PQ4E, W2AQ3A, W2AQ3C. If you had not gotten what you did, how would it have hurt your project or work?

N1 -	not been able to do it, not been able to complete project, not done project as well, not helpful, been returned to me, nothing to back me	10
S1 -	would have to talk or contact someone or figure it out myself.	20
I -	information	30
I1 -	gotten less or older information, less useful, less effective, different, wasn't as good	31
I2 -	not gotten information/answer at all	32
I3 -	Use same information/resources in a different form or another way	33
I4 -	gone to another information source	34
M1 -	(money) losing money	40
T1 -	(time) Would have taken more time, delayed, get behind, procrastinate	50
P-	Personal Reason	60
P1 -	not sure, don't know	61
P2 -	I'm in trouble, really hard, hurt a great deal	62
P3 -	not knowing where to start, stumbling around in the dark	63
G1 -	would have gone physically somewhere else, somewhere else (not specified)	70
H2 -	it wasn't important, didn't hurt project, Wouldn't hurt, just know I need to do more work	80

Reason: W1.2Q7, W2PQ5, W2AQ5. What was the reason you gave the score you did regarding the confidence in relying on the information you got from the service?

I - INFORMATION ITSELF	10
I1 - information is historical facts not opinions	11
I2 - information is specialized, related to my topic, detailed information	12
I3 - information is general	13
I4 - omitted	14
I5 - information comes from another source, that same information is used elsewhere, double check it	15
I6 - allows me to pursue to other places, heads me to other info, narrows down the amount I have to read, without it couldn't find what I need	16
I7 - NOT up-to-date, possibility of error	17

P - Personal Reason	20
P1 - successful in finding EVERYTHING they needed	21
P2 - fairly successful in finding MOST of what they needed	22
P3 - WASN'T successful in finding what they needed	23
P4 - DON'T KNOW, NOT SURE, will see if it works, need to talk to my teacher	24
P5 - experience tells me I got most of what I needed	25
P6 - I have confidence up to a certain date, is up-to-date	26

Staff Performance

Good Characteristics

E2 - helpful, showed me how, they're competent	32
E3 - they were comfortable with the information	33

BAD Characteristics

E5 - not helpful, they're not competent	35
E6 - they were not comfortable with the information	36

INFORMATION SERVICE

GOOD Characteristics

S2 - the reputation/sources of the service is good and reliable - I'm confident in it, it's accurate	42
S3 - have used the service in the past, its been useful, accurate and has worked	43
S4 - it's easily accessible, user friendly and convenient	44
S5 - it's fast, saves time	45
S6 - a lot of information available, more was provided than I thought possible, variety of sources, gives choice	46
S7 - still Learning how to use it	47
S8 - I have faith, trust, was given to us	48

S9 - BAD Characteristics

S10 - sources are NOT complete, NOT comprehensive, NOT useful, Not confident, not enough . . . 40

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Appendix B

Way: W1.2Q5A, W2CQ2A, W2PQ4A, W2AQ3A. In what way was this helpful to your project or work?

H - helped me/very helpful	10
H1 - helped me to find	11
H2 - helped me to find the information I needed (not specific)	12
H3 - helped me to find the information I needed for a task	13
H4 - helped me start, Gave me more direction about where to start (not specific), narrowed down search	14
G - gave me something	20
G1 - gave me a better grade	21
G2 - gave me ideas, insight, perspective	22
G3 - allowed me to complete or helped my project/ wouldn't have gotten it done without it/had to do it	23
G4 - gave me information/references	24
G5 - gave me up-to-date information	25
G6 - gave me access to people so I can get more information	26
T - time	30
T1 - saved time, didn't have to sit around	31
T2 - did not save time	32
M1 - save money	40
N - did not find anything	50
D - don't know anything	60

Getout: W1Q6, W1Q8, W1Q10, W1Q22, W2PQ1, W2PQ3A, W2PQ3B, W2AQ1, W2CQ1A, W2CQ1B, W1.2Q1, W1.2Q3, W1.2Q4. What did you get out of using the service? What was the value or benefit or impact?

1	Orient	1
1A	to locations of physical items in Library	11
1B	availability of resources or how much material is accessible, call numbers and type of materials: broad overview	12
1C	learn how to use equipment or resources items in library, facility, i.e. computer systems, electronic resources	13
2	**Work**	2
2A	it is their place for work, their carrels are there	21
2B	to use the computer	22
3	**Get**	3
3A	a physical Object like a book, tape, periodical etc.	31
3B	information, knowledge, background info, analysis, answer a question, clarification, made clear, find out, listen to something, view a film	32
3C	save time, quickly	33
3D	convenience, efficiency, make easy, , no problem, no trouble	34
3E	save money, didn't have to pay, cost effective	35
3F	fulfilled goals, task completed, got what I wanted, got everything I was looking for\even more than I expected	36
4	**did not get**	4
4A	item that wasn't available or had to go somewhere else to get it	41
4B	did not save time, took too long, longer than expected, time waiting, turnaround time isn't fast	42
4C	was not convenient, not easy to use, frustrating, not user friendly, Equipment didn't work well or not designed well	43
4D	didn't fulfill goals, didn't get everything I wanted, not able to get/see everything, not enough of, no access, incomplete,t current, there could/should more	44

Reason Codes:

RT	**For Task Accomplishment:**	5
RT1	for research	51
RT2	for a paper, dissertation, thesis, report, project	52
RT3	to make bibliography more complete	53
RT4	to put (NOT GET) a book, film, video on reserve	54
RT5	It's part of my job	55
RT6	for a class, studies	56
RT7	stay current, catch-up, recent	57
RT8	to point to another source of information	58

- RT9 allows access to inaccessible materials, go and get later, it's available . . . 59

RS For Someone . . . 6
- RS1 for a professor . . . 61
- RS2 for a student(s) . . . 62

RP For Personal Reasons . . . 7
- RP1 for leisure, pleasure, personal interest (not related to work), browsing . . . 71
- RP2 freedom from worry, reduces stress, makes teaching easier . . . 72
- RP3 didn't want to travel, want to acces from home . . . 73

RE Library Environment . . . 8
- RL Library Physical Layout . . . 81
  - RL1 could be better . . . 811
  - RL2 not big enough . . . 812
  - RL3 material not organized well . . . 813
- RR Procedure/Rules . . . 82
  - RR1 Fines too high . . . 821
  - RR2 Check out books for longer periods of time, time limits . . . 822
  - RR3 Library doesn't accept delivers . . . 823
- RP Performance . . . 83
  - RPE Equipment performance
    - RPE1 Worked well, user friendly . . . 931
    - RPE2 Didn't work well, not designed well, not user friendly . . . 932
  - RPS Staff Performance . . . 824
    - RPS1 Positive (people were nice, helpful, good at job, efficient did what they were supposed to do) . . . 941
    - RPS2 Negative (was not notified, had difficulties, unskilled clerks) . . . 942

Appendix B

Example Coding Instructions as they were used during the development and testing of the Empirical Taxonomy. These are the instructions for the "Getout" class of responses.

Questions 6, 8, 10 & 22 Coding Instructions

A. Read the entire response first before coding. Ask yourself : Do you understand what they're saying? Do their responses make any sense within the context of the original question? Reread the response and question. Can you recognize any keywords in the response that match the keywords for a code? Long and confused answers frequently contain only one or two concepts. Try to identify the concept(s) and corresponding code(s) by asking what action did this person say they would take and what was their reason for taking it. What is the main theme of their response?

B. Concentrate on the last things they say, usually it's the most meaningful part of the answer and what they're really trying to say. If there's nothing to code there, pay attention to the first thing they say. The initial response frequently contains codable information.

CODING RULES:

A. You may use up to three (3) codes per response only.

B. Code only for that specific occasion. Do not code when the respondent speculates on things they "might" do or their experiences of the past. It should be clear this is the action they would immediately carry out. If the respondent only speculates about what they would do, treat it as a legitimate response and code it.

C. If you're not sure, don't code it. Code only those ideas that are clear following your reading of their response.

D. Most responses will contain an action and a reason for the action. This is how the code sheet is divided, between action codes and reason codes. Action codes are 1 - 4, reason codes are those with the "R" in front of them. Learn how to recognize their patterns. The following words frequently indicate the presence of actions and reasons:

Action	Reason
get	for my
getting out	I'm doing for
I got	It helped in my
I needed	I needed to
I found	
looking for	
it helped me	

Ask yourself what are they trying to do or get? This is the action part of the response. Then ask why are they committing this action? What is the reason behind their action?

Respondents will say they do something, get something, watch something, and follow it with a reason. If the response is not coded in the reason section look to the action section for a code that is appropriate.

Sometimes they will answer with reasons only. In this case, be on the look out for "and". This will signal the presence of two or more reasons for what they're doing. Code all the reasons you have space for - it's the information this study is most interested in.

When the respondents use the following words: check, see, locate and find - all of these can be interpreted as getting something or taking an action. If they gain information, time, convenience, money or unfulfilled goals - all can be considered as getting something (action). The point here is to not confuse actions with reasons. There will be responses however that sound like a reason and can only be coded from the action codes - code them that way. The only rule is that there are no hard and fast rules. We want to "capture" the information as accurately as possible by whatever code does the trick. These are action responses which are different from reason responses. Occasionally a respondent might say "getting some research". The problem coding this one is that the "getting" something, an action, is "research" which is a reason code. Code the verbatim only. Research is the only code clearly present - code it. Always defer to the verbatim rule (see E).

E. As a general rule: code using the verbatim responses, that is , if you don't see it in print, don't code it. You should guard against "reading into" a response too much. Code only what's there by either matching the verbatim or picking out the one or two concepts that are being communicated in the response. If they use "and", then look for multiple reasons

CODING PRIORITIES:

A.. Try to code to the most specific level possible. If you cannot code to that level of specificity, use the general level or **Boldface** codes.

B. Code all reasons first followed by actions. What respondents say they are doing is not as important as to why they are doing it. They will get "something" for some reason. Code the reason or reasons first then, if space remains from your three (3) limit code response, code the action.

C. Always code the last thing they said. Then work your way back. As an example, a response such as "research project" should be first coded as a "project", "research" second. Clearly they're both reasons, so if only one unused code space remains you would choose "project" as the last code. The same is true for "class project", code for "project" first, "class" second. However, for sequence of actions, see D below.

D. All actions should be coded in the order they are given by the respondent. If they say: "I first would do ACTION X, then I would do ACTION Y followed by ACTION Z". Your coding priority should correspond to the chronological sequence of the respondent's actions. So your first action code would correspond to ACTION X, then Y and finally Z - assuming you still have not used all three of your coding slots.

Code Descriptions

1 **Orient**
1A To locations of physical items in Library
1B Availability of resources or how much material is accessible, call numbers and type of materials: broad overview
1C Learn how to use equipment or resources items in library, facility, i.e. computer systems, electronic resources

Keywords
1A: to find, find out, located at, help, where, didn't know, trying to find/look, searching, where to look,
1B: familiar with services, resources available, looking for sources, oriented, start, where
1C: Learn, taught me how to use, showed me how to, told how, familiarity with using

Code 1's: These codes are concerned with the respondent's orientation and familiarity with items in the library. Look for "find" words when trying to code category 1 codes.

Code 1A: Respondents tell of their gaining familiarity with the locations of things like copiers, computers, book shelves, layout of the building etc. This code's main theme is the location of things within the library - where things are.

Code 1B's theme is respondent's discoveries of what the library has available to them in the way of books, periodicals and services. Not concerned with where these items are (that's code 1A), they are intrigued by what opportunities the library has to offer.

Code 1C's theme is with respondent gaining experience, or being taught how to use some of the libraries' resources, usually equipment. They learned how to use electronic catalogues, computer systems, copier machines, equipment that gave them access to documents.

2 **Work**.
2A It is their place for work, their carrels are there
2B To use the computer

Keywords
My carrel/desk is there, I come to do my work here, able to work here, used computer

Code 2A is concerned primarily with students who come there to do their studies. Their carrel or desk is there so that's why they came to the library that day. It is a part of their normal everyday work activities.

Code 2B's theme is about students who came to the library to use the computer for writing a paper or for some other project.

3 **Get**

3A a physical Object like a book, tape, periodical etc.
3B information , knowledge, obtain background info, analysis, answer a question, clarification, made clear, find out, listen to something
3C save time, quickly
3D convenience, efficiency, make easy, user friendly, no problem, no trouble
3E save money, didn't have to pay, cost effective
3F Fulfilled goals, task completed, got what I wanted, got everything I was looking forgiven more than I expected

Keywords
Get, got, check see, locate, saved, easy, convenient, fast, simple, Objects include: books, periodical, journal articles, information, resource , tape, material, item.

This is the "action" part of the response and will frequently be present. Become familiar and learn how to recognize these codes - you will see them allot. Reread Coding Rule Paragraph D about action and reason codes again.

Code 3A is identified when the respondent says they came to the library to get a physical object like a book, periodicals or magazine. Although seemingly clear at first glance this code can frequently cause trouble. Sometimes it is not altogether clear what exactly is a physical object. You'll see words like reference, item or material and an action associated with looking at these things but with little indication of whether it's information or the actual books/objects they're after. In general, code 3A any time objects like books, references , periodicals, tapes, music, film or anything physical is mentioned that they're trying to get, had used or are looking for. If there's an item they're looking for, there's a 3A code present.

Code 3B's theme is something that is intangible, you can't touch it and no mention of a physical object is present in their response. The respondent is interested in reading, analysis, answering a question, subject knowledge, checking facts, listing to something - no where do they mention a physical item. Also information can be call #s, titles, citations, literature or information leading to the location of an items like references that lead them to an object. If it's clear they're trying to get a book through information, code both object 3A and information 3B. Stick to the verbatim rule - Paragraph E under Coding Rules.

Code 3C's respondents are interested in saving time, getting it done quickly - it was fast, and didn't take too long. Happening right away, promptly, within their time frame, didn't waste time are the concerns of 3C's respondents.

Code 3D's theme is ease of use, convenience, having little trouble with things. These respondents got what they wanted with little hassle and inconvenience. Their experiences will be described as effective and simple. Also convenience can be coded as narrowing down a search. Don't use this code for responses related to equipment performance, see Code R17 for that. Be careful you don't confuse this code with the time saving code 3C, they're very similar. You will see 3C's and 3D's frequently together in the same response.

Code 3E's respondents are the money saving people. They didn't have to buy something or it was cost effective. In short, saving money is the one theme here and is generally easy to identify.

Code 3F can be identified when the respondent says they got what they wanted and needed/ what they were looking for, without any mention of getting information, an object or anything else. Although not a useful code because it doesn't tell us much, it frequently appears. The respondents', in effect, don't tell us much more than "yes, I got what I wanted" nothing more, nothing less. They completed what they set out do and sometimes got even more then they asked for, beyond their expectations. There's a sense of task completion. Again, if you can find another code that is more specific use it but many times this is all you'll have.

4 **Did not get**
4A Item that wasn't available or had to go somewhere else to get it
4B Did not save time, took too long, longer than expected, time waiting, turnaround time isn't fast
4C Was not convenient, not easy to use, frustrating, not user friendly, long time to use, didn't have to travel
4D Didn't fulfill goals, didn't get everything I wanted, not able to get/see everything, not enough of, no access

Keywords
Did not get what they wanted/needed, not worthwhile, not useful, didn't find, didn't get access, missing, not user friendly, hard to use, too long, didn't save time, not enough of

Code 4A will frequently be recognized in the interlibrary loan questions. Respondents were trying to get a book or item at a library and it wasn't there necessitating them to use the interlibrary loan or Materials delivery service. They also could have been looking for an item and it just wasn't there prompting disappointment from the respondent. Be careful not to code these responses as convenience. If they're getting it from somewhere else think of it as "not being available" from where they would normally get it.

Code 4B is the exact opposite of Code 3C. This code will appear whenever the respondent says it took too long, longer than they originally thought or expected. It just wasn't fast enough for these people. They didn't save time - they lost and wasted time

Code 4C is the exact opposite of Code 3D. These respondents experiences with this service were not easy. Their experience was not convenient. Be careful not to confuse this code with equipment performance not being up to par - use Code R17 for that response.

Code 4D is the exact opposite of Code 3F. Here the respondent did not get their goals fulfilled, were not able to get what they wanted. There should have been more for these people, it wasn't complete and not current. A general uncertainty pervades their response; it's as if they didn't see everything they hoped to see or get. They will mention how incomplete their experience was or what they got wasn't current.

Reason Codes R1 - R 17

Keywords
"for my", "I'm doing for", "It helped in my", "I needed to"

Please reread Coding Rules, Paragraph D to fully understand the difference between reasons and actions. Essentially a reason can be identified by answering one question following the reading of a response: Why did these people say this response? Sometimes they won't say, other times that's all they will say. Reasons can be identified by the use of "for" and "for my".

Not all reasons are contained in these codes. Look to the action codes for responses that are worded like reasons. Primarily the reason codes were developed because these verbatim "reasons" frequently appeared. Most reason responses can be coded through verbatim coding only.

R1 to put (NOT GET) a book, film, video on reserve : Used mostly by professors who PUT books on reserve for their students. DO NOT use this code when a respondent is getting a book from reserve, use the getting object code 3A, for that.

R2 for research: Use verbatim, if you don't see this word , don't code it.

R3 for a paper, dissertation, thesis, report, project: Another verbatim code, when you see it or anything close to it, use it. Reread Coding Priorities Paragraph C again to remind yourself how to code research with project. You'll see this allot.

R4 to make bibliography more complete: Use verbatim, if you don't see these words , don't code it.

R5 stay current, catch-up, recent: Used by respondents who are staying current, seeing what latest information is out there or for students who want to catch-up on back work.

R6 for leisure, pleasure, personal interest (not related to work), browsing: Verbatim as well as concept code. Respondents will say they're doing it for fun, leisure, relax, an interest not related to anything else should be coded here. If it's for a job, that's a personal interest - code here. Browsing is a verbatim, if you don't see it, don't code it.

R7 for a class, studies: You'll see this in many forms, specifically they'll name the class. When a respondent mentions particular subjects, i.e. Ancient Roman Architecture or Accounting, these should be coded "for a class". Many times a paper they'll be working will be for this reason

R8 to point to another source of information: A concept code you won't see frequently.

Some will say "This information lead me to another source which..." clearly, it pointed them to other sources of information.

R9 for a student(s): Used by professors, you won't see it much.

R10 Staff Performance
  R10.A Positive (people were nice, helpful,good at job, efficient did what they were supposed to do)
  R10.B Negative (was not notified, had difficulties, unskilled clerks)
These codes will be present anytime a respondent talks about the Library Staff.

R11 Allows access to inaccessible materials, go and get later, it's available: A seemingly strange code but people say it. Close to verbatim responses here.

R12 Didn't' want to travel, want to access from home: Use verbatim, if you don't see these words , don't code it.

R13 freedom from worry, reduces stress, makes teaching easier: Use verbatim, if you don't see these words , don't code it.

R14 It's part of my job: Not used much, put people do use the Library in the fulfillment of their job related duties or one could interpret it that way.

R15 Physical environment
  R15.A could be better
  R15.B not big enough
  R15.C material not organized well
You'll see this code exclusively on question 22. Almost verbatim. This code represents peoples' responses about what they think of the physical library environment.

R16 Procedure or library rules:
  R16.A Fines too high
  R16.B Check out books for longer periods of time, time limits
  R16.C Library doesn't accept delivers
Again, You'll see this code exclusively on question 22. Almost verbatim. This code represents peoples' responses about what they think of the library's procedures.

R17 Equipment performance
  R17.A Worked well, user friendly
  R17.B Didn't work well, not designed well, not user friendly
This code will be seen in question 22 and question 10. Use it for respondents' comments on system and equipment performance. Good comments get R17.A, bad comments get R17.B. Don't confuse this code with the good and bad convenience codes; 3D and 4C.
[These are illustrative. Similar detailed instructions were used in applying the other components of the empirical taxonomy.]

1. Assignment of Questions to Coding schemes

The following is a list of all of the questions that have been coded according to each of the open-ended coding schemes described in this report. The labels are, for example W1.2Q17= "Wave 1.2 Question 17".

Code Class: Done -- Coded What Would Have Done

W1Q17	[16. If service name were not available at this library, is there something else you could have done to get the same benefit?]. What would you have done?
W1.2Q12A	If service name were not available at this library, is there something else you could have done to get this same benefit?

Code Class: Getout -- Coded by What you Getout

W1Q6	Why did you use service name today?
W1Q8	What did you get out of using service name today?
W1Q10	[9. Using a scale from 1 to 7 where 1 means not at all successful and 7 means very successful, how successful were you in getting what you needed from service name?]. What would you say is the reason you feel that way?
W1Q22	[21. If 100 represents the best possible experience with service name that you could imagine, and 0 represents the worst, what score would you give for the way it actually turned out?]. Why did you choose that score?
W2P1	Thinking about the last time you used service name, what was the actual project or work that brought you to use it?
W2P3a	What did you get out of using service name on that occasion?
W2P3b	What would you say was the value or benefit or impact of that for you and for your work?
W2A1	What is the actual project or work that brought you to use service name today?
W2C1A	What did you get out of using service name on that occasion?
W2C1B	What would you say was the value or benefit or impact of that for you

and for your work?

W1.2Q1 Why did you use service name today?

W1.2Q3 What is the actual project or work that brought you to use this service today?

W1.2Q4 What did you get out of using service name today?

Code Class: Reason -- Coded According to Reason

W1.2Q7 [6. Using a scale from 1 to 7 where 1 means not at all confident and 7 means extremely confident, how confident are you that you can rely on the information you got from using service name today?]. What would you say is the reason you feel that way?

W2P5a [5. Using a scale from 1 to 7 where 1 means not all confident and 7 means extremely confident, how confident are you that you can rely on the information you got from using service name on that occasion?]. What would you say is the reason you feel that way?

W2A5 [4. Using a scale from 1 to 7 where 1 means not at all confident and 7 means extremely confident, how confident are you that you can rely on the information you got from using service name today?]. What would you say is the reason you feel that way?

Code Class: Choose -- Coded on Choose Scheme

W1.2Q17 [16. If 100 represents the best possible experience with service name that you could imagine, and 0 represents the worst, what score would you give for the way it actually turned out today?]. Why did you choose that score?

Code Class: Way -- Coded According to Way

W1.2Q5a [5. On a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you got to your actual project or work?]. In what way was this helpful to your project or work?

W2C2a	[2. On a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you go to your actual project or work?]. In what way was this helpful to your project or work?
W2P4a	[4. On a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you got to your actual project or work?]. In what way was this helpful to your project or work?

Code Class: Hurt -- Coded by how it would hurt

W1.2Q5b	[5. On a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you got to your actual project or work?]. If you had not gotten what you did, how would it have hurt your project or work?
W1.2Q5c	In what way was it not helpful to your project or work?
W1.2Q5e	How did it hurt your project or work?
W2C2Qb	[2. On a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you got to your actual project or work?]. If you had not gotten what you did, how would it have hurt your project or work?
W2P4b	[4. On a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you got to your actual project or work?]. If you had not gotten what you did, how would it have hurt your project or work?
W2P4c	In what way was it not helpful to your project or work?
W2P4e	How did it hurt your project or work?
W2A3a	[3. on a scale of 1 to 7 with 1 being not at all helpful and 7 being very helpful, how helpful was what you got to your actual project or work?]. In what way was it not helpful to your project or work?
W2A3c	How did it hurt your project or work?

B3. Link of empirical codes used in this study (the Empirical Taxonomy) to the conceptual taxonomy(Derived Taxnomy) proposed in Chapter 4 of the principal report. Except for the code class "Getout", present codes are indicated by Question number and instrument, as "Q17t2A" means "Code 2A of the scheme used to code Question 17 on the 1.2 ("t" for "two") instrument.

Present	Proposed
Class "Getout"	
1	A.2.1.3
1A	A.2.1.3
1B	A.2.1.3
1C	A.2.1.3
2	A.3.3
2A	A.3.3
2B	A.3.3.6
3	A.3
3A	A.3.1
3A	A.3.1.1
3B	A.3.2.1
3B	A.3.3.2
3C	C.5.1
3D	B.2.1
3E	C.6.2
3F	C.4
3F	C.4.1
3F	C.3
3F	C.3.1
3F	C.3.2
3F	C.4.5
4	A.3
4A	B.1
4A	B.1.1
4B	C.5.1
4B	C.5.2
4B	C.5.3
4C	B.2.1
4D	C.4
4D	C.4.1
4D	C.3
4D	C.3.1
4D	B.1.2
4D	B.1.3
RT	A.1
RT1	A.1.1
RT2	A.1.2
RT2	A.1.3
RT2	A.1.4
RT3	A.1.6
RT4	NOT_USED
RT5	NOT_USED
RT6	A.1.7
RT6	A.3.3.1
RT7	A.2.1.2
RT8	A.3.2.2
RT9	NOT_USED
RS	A.1.15
RS1	A.1.15
RS2	A.1.15
RP	A.2
RP1	A.2.2.1
RP2	A.2.2.2
RP3	NOT_USED
RE	B.3.2
RL	B.3.2.2
RL1	B.3.2.2
RL2	B.3.2.2
RL3	B.3.2.3
RR	B.3.1
RR1	B.3.1.3
RR2	B.3.1.2
RR3	NOT_USED
RP	B.3.3
RP	B.3.4
RPE	B.3.4
RPE1	B.3.4.3
RPE2	B.3.4.3
RPS	B.3.3
RPS1	B.3.3.1
RPS1	B.3.3.2
RPS1	B.3.3.3
RPS2	B.3.3.1
RPS2	B.3.3.2
RPS2	B.3.3.3
Q17	B.4
Q17.1	B.4.10
Q17.2	B.4.9
Q17.2A	B.4.9
Q17.2B	B.4.9
Q17.2C	B.4.9
Q17.2D	B.4.9
Q17.2E	B.4.9
Q17.2F	B.4.9
Q17.2G	B.4.9
Q17.3	B.4.1
Q17.3A	B.4.1
Q17.3B	B.4.1
Q17.4	B.4.2
Q17.4A	B.4.2
Q17.4B	B.4.2
Q17.4C	B.4.2
Q17.5	B.4.3
Q17.5A	B.4.3
Q17.5A1	B.4.3
Q17.5A2	B.4.3
Q17.5B	B.4.3
Q17.5C	B.4.3
Q17.6	B.4.6
Q17.6A	B.4.6
Q17.6B	B.4.6
Q17.7	NOT_USED

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Q17t.L1	B.3.3.1
Q17t.L2	B.3.3.2
Q17t.L3	B.3.3.2
Q17t.L4	B.3.3.1
Q17t.Q1	C.5.1
Q17t.Q2	C.5.2
Q17t.Q3	C.6.2
Q17t.Q4	B.2.1
Q17t.PR1	C.1.4
Q17t.PR2	NOT_USED
Q17t.P1	B.3.3.2
Q17t.P2	B.3.3.2
Q17t.G1	C.4.1
Q17t.G2	C.4.1
Q17t.G3	C.4.1
Q17t.E1	B.3.4.1
Q17t.E1	B.3.4.3
Q17t.E2	B.3.4.1
Q17t.E2	B.3.4.3
Q17t.E3	NOT_USED

Q5A.H	C.3
Q5A.H1	C.3.1
Q5A.H2	C.3.1
Q5A.H3	C.3.1
Q5A.H4	C.3.4
Q5A.G1	C.3.2
Q5A.G2	C.1.4
Q5A.G3	C.3.1
Q5A.G4	C.4.1
Q5A.G5	C.4.1
Q5A.G6	C.3.3
Q5A.T1	C.5.1
Q5A.T2	C.5.2
Q5A.M1	C.6.2
Q5A.N	C.4.3
Q5A.D	C.4.4

xxxx	xxxxx
QR.N1	C.4.6
QR.S1	C.4.6
QR.I1	C.4.1
QR.I2	C.4.3
QR.I3	B.4.1
QR.I4	B.4.3
QR.M1	B.6.5
QR.T1	C.5.2
QR.P1	C.4.4
QR.P2	C.4.6
QR.P3	C.1.6
QR.G1	B.4.2
QR.G1	B.4.3
QR.H2	C.4.6

Q7.I1	NOT_USED
Q7.I2	NOT_USED
Q7.I3	NOT_USED
Q7.I4	NOT_USED
Q7.I5	NOT_USED
Q7.I6	C.1.4
Q7.I7	B.1.3
Q7.P1	C.4.1
Q7.P2	C.4.1
Q7.P3	C.4.3
Q7.P4	C.4.4
Q7.P5	C.4.1
Q7.P6	C.4.4
Q7.E2	B.3.3.2
Q7.E3	B.3.3.1
Q7.E5	B.3.3.2
Q7.E6	B.3.3.1
Q7.S2	C.4.4
Q7.S3	NOT_USED
Q7.S4	B.1.4
Q7.S4	B.2.1
Q7.S5	C.5.1
Q7.S6	C.4.5
Q7.S7	A.2.1.3
Q7.S8	C.4.4
Q7.S10	C.4.1
Q7.S10	C.3.1

Q12A.P1	B.4.1
Q12A.P2	B.4.3
Q12A.P3	B.4.3
Q12A.P5	B.4.6
Q12A.P6	C.6.4
Q12A.M1	B.4.9
Q12A.M2	B.4.9
Q12A.M3	B.4.10
Q12A.I1	B.4.1
Q12A.I2	B.4.1
Q12A.I3	B.4.1
Q12A.I4	B.4.1
Q12A.I5	B.4.6
Q12A.I6	B.4.2
Q12A.I7	B.4.2
Q12A.I8	B.4.1
Q12A.I9	B.4.1
Q12A.I10	B.4.1
Q12A.R1	B.4.9
Q12A.T3	B.2.3
Q12A.T4	B.2.3
Q12A.L1	B.4.8

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Appendix B

The following reverse table is provide to assist in tracking the proposed codes to the codes used in this study. Here the entries are listed in order of their proposed codes, with multiple entries for proposed codes that map to more than one of the codes used in this study.

RT	A.1
RT1	A.1.1
RS	A.1.15
RS1	A.1.15
RS2	A.1.15
RT2	A.1.2
RT2	A.1.3
RT2	A.1.4
RT3	A.1.6
RT6	A.1.7
RP	A.2
RT7	A.2.1.2
1	A.2.1.3
1A	A.2.1.3
1B	A.2.1.3
1C	A.2.1.3
Q7.S7	A.2.1.3
RP1	A.2.2.1
RP2	A.2.2.1
3	A.3
4	A.3
3A	A.3.1
3A	A.3.1.1
3B	A.3.2.1
RT8	A.3.2.2
2	A.3.3
2A	A.3.3
RT6	A.3.3.1
3B	A.3.3.2
2B	A.3.3.6
4A	B.1
4A	B.1.1
4D	B.1.2
4D	B.1.3
Q7.I7	B.1.3
Q7.S4	B.1.4
3D	B.2.1
4C	B.2.1
Q17t.Q4	B.2.1
Q7.S4	B.2.1
Q12A.T3	B.2.3
Q12A.T4	B.2.3
RR	B.3.1
RR2	B.3.1.2
RR1	B.3.1.3
RE	B.3.2
RL	B.3.2.2
RL1	B.3.2.2
RL2	B.3.2.2
RL3	B.3.2.3
RP	B.3.3
RPS	B.3.3
RPS1	B.3.3.1
RPS2	B.3.3.1
Q17t.L1	B.3.3.1
Q17t.L4	B.3.3.1
Q7.E3	B.3.3.1
Q7.E6	B.3.3.1
RPS1	B.3.3.2
RPS2	B.3.3.2
Q17t.L2	B.3.3.2
Q17t.L3	B.3.3.2
Q17t.P1	B.3.3.2
Q17t.P2	B.3.3.2
Q7.E2	B.3.3.2
Q7.E5	B.3.3.2
RPS1	B.3.3.3
RPS2	B.3.3.3
RP	B.3.4
Q17t.E1	B.3.4.1
Q17t.E2	B.3.4.1
RPE1	B.3.4.3
RPE2	B.3.4.3
Q17t.E1	B.3.4.3
Q17t.E2	B.3.4.3
Q17	B.4
Q17.3	B.4.1
Q17.3A	B.4.1
Q17.3B	B.4.1
QR.I3	B.4.1
Q12A.P1	B.4.1
Q12A.I1	B.4.1
Q12A.I2	B.4.1
Q12A.I3	B.4.1
Q12A.I4	B.4.1
Q12A.I8	B.4.1
Q12A.I9	B.4.1
Q12A.I10	B.4.1
Q17.1	B.4.10
Q12A.M3	B.4.10
Q17.4	B.4.2
Q17.4A	B.4.2
Q17.4B	B.4.2
Q17.4C	B.4.2
QR.G1	B.4.2
Q12A.I6	B.4.2
Q12A.I7	B.4.2
Q17.5	B.4.3
Q17.5A	B.4.3
Q17.5A1	B.4.3
Q17.5A2	B.4.3
Q17.5B	B.4.3
Q17.5C	B.4.3
QR.I4	B.4.3
QR.G1	B.4.3
Q12A.P2	B.4.3
Q12A.P3	B.4.3
Q17.6	B.4.6
Q17.6A	B.4.6
Q17.6B	B.4.6
Q12A.P5	B.4.6
Q12A.I5	B.4.6
Q12A.L1	B.4.8
Q17.2	B.4.9
Q17.2A	B.4.9
Q17.2B	B.4.9
Q17.2C	B.4.9
Q17.2D	B.4.9
Q17.2E	B.4.9
Q17.2F	B.4.9
Q17.2G	B.4.9
Q12A.M1	B.4.9
Q12A.M2	B.4.9
Q12A.R1	B.4.9
QR.M1	B.6.5
Q17t.PR1	C.1.4
Q5A.G2	C.1.4
Q7.I6	C.1.4
QR.P3	C.1.6
3F	C.3
4D	C.3
Q5A.H	C.3
3F	C.3.1
4D	C.3.1
Q5A.H1	C.3.1
Q5A.H2	C.3.1
Q5A.H3	C.3.1
Q5A.G3	C.3.1
Q7.S10	C.3.1
3F	C.3.2
Q5A.G1	C.3.2
Q5A.G6	C.3.3
Q5A.H4	C.3.4
3F	C.4

4D	C.4
3F	C.4.1
Q17t.G1	C.4.1
Q17t.G2	C.4.1
Q17t.G3	C.4.1
Q5A.G4	C.4.1
Q5A.G5	C.4.1
QR.I1	C.4.1
Q7.P1	C.4.1
Q7.P2	C.4.1
Q7.P5	C.4.1
Q7.S10	C.4.1
4D	C.4.1
Q5A.N	C.4.3
QR.I2	C.4.3
Q7.P3	C.4.3
Q5A.D	C.4.4
QR.P1	C.4.4
Q7.P4	C.4.4
Q7.P6	C.4.4
Q7.S2	C.4.4
Q7.S8	C.4.4
3F	C.4.5
Q7.S6	C.4.5
QR.N1	C.4.6
QR.S1	C.4.6
QR.P2	C.4.6
QR.H2	C.4.6
3C	C.5.1
4B	C.5.1
Q17t.Q1	C.5.1
Q5A.T1	C.5.1
Q7.S5	C.5.1
4B	C.5.2
Q17t.Q2	C.5.2
Q5A.T2	C.5.2
QR.T1	C.5.2
4B	C.5.3
3E	C.6.2
Q17t.Q3	C.6.2
Q5A.M1	C.6.2
Q12A.P6	C.6.4
RT4	NOT USED
RT5	NOT USED
RT9	NOT USED
RP3	NOT USED
RR3	NOT USED
Q17.7	NOT USED
Q17t.PR2	NOT USED
Q17t.E3	NOT USED
Q7.I1	NOT USED
Q7.I2	NOT USED
Q7.I3	NOT USED
Q7.I4	NOT USED
Q7.I5	NOT USED
Q7.S3	NOT USED

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[Note:A list of all appendices appears at the end of the file: finalbig.psl51]

APPENDIX C

Open Ended Coding Result Tables

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Appendix C

We present here the full results for each coding scheme. In the body of the report (Chapter 4) we presented only those responses which occured represented at least 10% of the responses. Note that because schemes were evolving during the study, not all schemes were applied to 528 cases. Some were used only in Wave 1, or only in later waves, respectively. Please refer ot Appendix B for a complete list of the questions which wre coded according to each of the schemes shown here.

Group $CHOOSE Coded on Choose Scheme

Category label	Code	Count	Pct of Responses	Pct of Cases
	Total responses--->	109	100.0	143.4
Got everything I wanted	51	22	20.2	28.9
Save time	21	14	12.8	18.4
Helpful finding	12	13	11.9	17.1
Could have been more	53	11	10.1	14.5
Got most	52	10	9.2	13.2
More easy, convenient	24	10	9.2	13.2
Personal reason	30	5	4.6	6.6
I'm still learning	63	4	3.7	5.3
Equipment doesn't work well	62	4	3.7	5.3
Gave me a direction	31	4	3.7	5.3
Too much time	22	3	2.8	3.9
Look it up myself	32	2	1.8	2.6
Saved money	23	2	1.8	2.6
Equipment does work well	61	1	.9	1.3
Bad physical environment	42	1	.9	1.3
Not in my area of specialization	14	1	.9	1.3
Not helpful finding	13	1	.9	1.3
Problems getting my point	11	1	.9	1.3

452 missing cases; 76 valid cases

```
Group $DONE  Coded What Would Have Done

                                                          Pct of  Pct of
Category label                              Code   Count  Responses  Cases
                               Total responses--->   317    100.0   131.0
                                                  -------   -----   -----
Another library                                4      44     13.9    18.2
Another university                            42      38     12.0    15.7
Another place                                  5      25      7.9    10.3
A public library                              41      21      6.6     8.7
Interlibrary loan or recall                   31      19      6.0     7.9
 Card catalog                                 26      19      6.0     7.9
Buy items                                    511      18      5.7     7.4
Check book" 3 "Other library services"        27      17      5.4     7.0
Indexes                                       21      16      5.0     6.6
                                               2      15      4.7     6.2
Librarian                                     32      10      3.2     4.1
Abstracts                                     24      10      3.2     4.1
On-line (electronic) services                 23       8      2.5     3.3
Professor/adviser/teacher                     62       7      2.2     2.9
Do nothing                                     1       7      2.2     2.9
Friend                                        61       6      1.9     2.5
My work                                       53       6      1.9     2.5
Another computer facility                     52       6      1.9     2.5
People                                         6       6      1.9     2.5
Bookstore/record store                        51       5      1.6     2.1
Rent items                                   512       3       .9     1.2
Randomly look                                 22       3       .9     1.2
                                               3       3       .9     1.2
Readers guide                                 25       2       .6      .8
Miscellaneous                                  7       2       .6      .8
Checking computer system                      43       1       .3      .4

286 missing cases;  242 valid cases
```

```
Group $GETOUT  Coded by What you Getout
                                                             Pct of   Pct of
Category label                          Code      Count   Responses   Cases
                            Total responses--->    3497     100.0     662.3
                                                 -------    -----     -----
Get physical Object                       31        459      13.1      86.9
Information, knowledge                    32        407      11.6      77.1
For a paper                               52        383      11.0      72.5
Work                                       2        271       7.7      51.3
Orient                                     1        265       7.6      50.2
Task completed                            36        212       6.1      40.2
For research                              51        192       5.5      36.4
For a class                               56        174       5.0      33.0
Save time                                 33        168       4.8      31.8
Convenience, efficiency                   34        146       4.2      27.7
Didn't fulfill goal                       44        119       3.4      22.5
Not available                             41        110       3.1      20.8
Positive (People were nice)              941         53       1.5      10.0
For personal reasons                       7         45       1.3       8.5
Go and get later                          59         37       1.1       7.0
Didn't work well                         932         31        .9       5.9
Locations of items                        11         31        .9       5.9
Save money                                35         30        .9       5.7
Learn to use resources                    13         30        .9       5.7
Part of my job                            55         29        .8       5.5
Stay current                              57         28        .8       5.3
Took too long                             42         28        .8       5.3
Didn't want to travel                     73         25        .7       4.7
For a student                             62         24        .7       4.5
Point to another source                   58         23        .7       4.4
Not convenient                            43         20        .6       3.8
Time limits                              822         16        .5       3.0
For leisure                               71         14        .4       2.7
Negative (was not notified)              942         12        .3       2.3
Place for work                            21         12        .3       2.3
User friendly                            931         11        .3       2.1
Make bibliography                         53          9        .3       1.7
Availability of resources                 12          9        .3       1.7
Reduces stress                            72          8        .2       1.5
For a professor                           61          8        .2       1.5
Put on reserve                            54          8        .2       1.5
For task accomplishment                    5          8        .2       1.5
Could be better layout                   811          6        .2       1.1
Use computer                              22          6        .2       1.1
Fines too high                           821          5        .1        .9
                                          70          4        .1        .8
                                          50          4        .1        .8
For someone                                6          4        .1        .8
Get                                        3          3        .1        .6
Doesn't accept delivers                  823          2        .1        .4
Not well organized                       813          2        .1        .4
Procedures/rules                          82          2        .1        .4
Not big enough layout                    812          1        .0        .2
Performance                               83          1        .0        .2
Library environment                        8          1        .0        .2
```

```
Did not get                                4          1         .0         .2
0 missing cases;  528 valid cases
```

```
Group $HURT  Coded by how it would hurt

                                                             Pct of  Pct of
Category label                                Code      Count  Responses  Cases
                             Total responses--->      230     100.0    124.3
                                                  -------    -----    -----
Not able to complete                          10         66     28.7     35.7
Taken more time                               50         53     23.0     28.6
Gotten less information                       31         26     11.3     14.1
Other information source                      34         20      8.7     10.8
Gone physically somewhere else                70         15      6.5      8.1
Not gotten information                        32          7      3.0      3.8
Hurt a great deal                             62          6      2.6      3.2
Not sure                                      61          6      2.6      3.2
It wasn't important                           80          5      2.2      2.7
Personal reason                               60          5      2.2      2.7
Contact someone or figure it out              20          5      2.2      2.7
T1-(time) Would have taken more time          51          4      1.7      2.2
Losing money                                  40          4      1.7      2.2
Same resources in different form              33          4      1.7      2.2
Not knowing where to start                    63          3      1.3      1.6
                                              53          1       .4       .5
343 missing cases;  185 valid cases
```

```
Group $REASON  Coded according to reason

                                                         Pct of  Pct of
Category label                        Code    Count  Responses   Cases
                            Total responses--->   220    100.0     126.4

Confident in service                    42       31     14.1     17.8
Used the service in the past            43       29     13.2     16.7
Not complete,comprehensive,useful       40       22     10.0     12.6
Helpful                                 32       17      7.7      9.8
Double check                            15       12      5.5      6.9
I have trust                            48       10      4.5      5.7
Not sure                                24       10      4.5      5.7
Finding everything                      21       10      4.5      5.7
A lot of information                    46        9      4.1      5.2
Personal reason                         20        9      4.1      5.2
To other info                           16        9      4.1      5.2
Easily accessible                       44        8      3.6      4.6
Specialized to my topic                 12        8      3.6      4.6
Saves time                              45        7      3.2      4.0
Confidence up to a certain date         26        6      2.7      3.4
Not up-to-date                          17        4      1.8      2.3
Learn to use it                         47        3      1.4      1.7
Experience tells me                     25        3      1.4      1.7
Wasn't successful                       23        3      1.4      1.7
Omitted                                 14        3      1.4      1.7
Finding most                            22        2       .9      1.1
Not comfortable                         36        1       .5       .6
Not helpful                             35        1       .5       .6
Comfortable                             33        1       .5       .6
General                                 13        1       .5       .6
Facts not opinions                      11        1       .5       .6
354 missing cases;  174 valid cases
```

```
Group $WAY  Coded according to way

                                                        Pct of  Pct of
Category label                         Code     Count  Responses  Cases
                             Total responses--->   203   100.0    111.5
                                                -------  -----    -----
Information/references                   24        58     28.6     31.9
Helped me start                          14        27     13.3     14.8
Complete or help my work                 23        23     11.3     12.6
Ideas, insight, perspective              22        22     10.8     12.1
How to find information                  12        12      5.9      6.6
Saved time                               31        11      5.4      6.0
Helped me                                10        11      5.4      6.0
Up-to-date information                   25        10      4.9      5.5
Find information                         13         9      4.4      4.9
Don't know anything                      60         7      3.4      3.8
Access to people                         26         4      2.0      2.2
Did not find anything                    50         3      1.5      1.6
Save money                               40         2      1.0      1.1
How to find                              11         2      1.0      1.1
A better grade                           21         1       .5       .5
Gave me something                        20         1       .5       .5

346 missing cases;  182 valid cases
```

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APPENDIX D

Cost Data Collection Forms

D1. Cover memo
D2. Extracts from Tantalus Inc FUNCOST Manual
D3. White Forms: Personnel and Other Direct Costs
D4. Yellow Form. Estimate of Service Rendered
D5. Return Instructions

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Appendix D

LETTER TO LIBRARY DIRECTORS AND LIBRARIANS PARTICIPATING IN THE STUDY

Dear

We are entering the last lap of the data collection for our project on measuring the costs and beneficial impacts of library functions. At this point everyone else on the team is tied up with analysis of the interview data, so I will be coordinating the cost part of the study myself.

In a nutshell, we want to estimate how much it costs (over the whole year) to provide each of the specific services studied at your library. We will divide that by the total number of times the service was used, to get an average unit cost for the service.

In an ideal world (from an economist's point of view) you have both of these figures in some recent report, and can just send them to us directly. Because the world is usually not ideal, I am enclosing some forms and guidelines which may be helpful in estimating those numbers.

I recommend that you delegate this task to someone who has a good understanding of what goes on in your library, and has access to salary figures. That person may in turn add one more colleague, to conduct brief interviews with staff obtaining estimates of their time allocated to the specific service. I strongly suggest that the responsibility not be further distributed, as it is hard to ensure that these guidelines will be interpreted consistently.

Although I am traveling off and on for the next few weeks, I am promptly accessible via email as kantor@zodiac.rutgers.edu, and will try to answer any questions within 24 hours.

The data analysis is coming together very nicely. We have completed the statistical analysis of Wave I, and are well along in the content analysis of that data. As several libraries have requested, we are preparing files containing the transcribed texts of all responses at your library, arranged by question, and not by respondent. We judge that this protects the privacy of the respondents in accordance with our human subjects regulations.

Sincerely,
Paul B. Kantor,
Professor and Director
PBK/wp Encl: Cost Data Collection Manual and Forms.

cc:

Appendix D

TO: The person(s) collecting cost data
FROM: Paul Kantor

I have enclosed a few pages lifted from an earlier manual on cost analysis. Since they arise out of context they may seem to be a little obscure, and I'll try to provide that context here.

Costs are made up of labor costs and other direct costs. When a person (or a piece of equipment, or a kind of supplies) is 100% dedicated to some specific service, there is no problem. We count 100% of salary, or 100% of the direct cost, as a cost of that service.

But when a person, a supply or a piece of equipment is shared by several services, we must do a little more work. For the supplies or equipment we ask you to estimate an allocation directly to the service of interest. An allocation will have a unit (in which the allocation is measured), a basis (the total number of those units) and a share (the number assigned to the particular service.

For example, if a central computer supports 210 terminals, of which 103 are used for the OLPAC, the analysis is:

Service= Computer
Cost/yr= 400,000
Unit = terminals
Basis = 210.
Share = 103.

If you want to complete the calculation and just send us the result ($400,000 x 103/210 = 196,191) I won't complain, but we are set up to do all the calculation very easily. To simplify things we provide a form (you may make as many copies as you need, to cover various direct costs) in which all of the data shown here will fit onto a single row.

For labor costs our guiding principle is the same, but the procedure must be a little more complicated. For people who work 100% on the service being costed, their whole salaries are entered. But many people who work in libraries divide their time among tasks and services. We deal with this by a method called "guided introspection". This is much less burdensome than keeping logs or diaries, or doing observational work-sampling studies.

The key to guided introspection is to ask each person how much time goes into the service at hand. As noted on the sheets, we can deal with answers given as a percentage, as hours per day, or as hours per week. We have found, in numerous studies, that this method gives sufficient accuracy for purposes of functional cost analysis.

HOWEVER, there is one pitfall to avoid. When a person is interviewed about a specific service (say, materials delivery) that service assumes increased importance in that person's mind, leading to potential inflation of the cost of the service under study. To control for this we try always to situate the service of interest in the context of other services on which that person works.

If you know the array of services on which the people to be interviewed work, you may prepare the data form in advance. This works especially well if there are only a few "other services" to be considered. If the people to be interviewed work on a host of different services you will do better to simply use a new sheet for each person, and begin by asking: "what are the different services you work on?". You might also suggest a few, and be sure to include the service of interest. Next, ask the respondent which service or activity takes up the most time, and how much it takes up. Then continue in decreasing order of time spent on services until you have covered them all.

We have allowed special columns for tallying "professional development" which is a part of the working load for professional librarians, and "administrative meetings" which play a greater or lesser role, according to the way in which your library is managed.

The process may seem awkward at first, but becomes quite easy, and consumes less than 10 minutes for each person interviewed. I consider it good practice to revisit each person about a week later, to ask whether the numbers you recorded still look reasonable, and to change them as needed.

Adding salaries to the sheets should be done last, as these are frequently treated as confidential. Do not include fringe and overhead in the computed salary.

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Extracts from the Tantalus Inc. FUNCOST Manual (Revised with Permission). How to Fill Out the Form for Allocation of Labor.

We are looking for thoughtful but NOT totally documented estimates of how each staff member spends her/his time. We call this process "guided introspection."

Different people think of their time in different ways. Some people think of their time in percentages, some people think of their time in hours per day, and others think of their time in hours per week. Any one of those schemes is all right. It doesn't matter which is used.

In fact, we don't require that the hours add up right. Our examples below will show this. Person A in this example estimated that he spends 20 hours of a week on General and Administration and spends 15 hours per week on the Selection and Ordering of materials for the library. Then he added that he spends 10 hours per week at the reference desk. That adds up to 45 hours per week. We don't mind this. What we really want to know is that "reference is about half as much as the administration and that the selection and acquisition together are about 50% more than reference". We wouldn't even be alarmed if this person turned around and said: "Oh yes, I also spend 5 hours a week at the circulation desk." So it is NOT important to make these numbers add up to the actual number of hours in the working week. What is important is the ratios.

Person B is the kind of person who thinks of her time in terms of hours per day rather than hours per week. So she reports that she spends 3 hours per day on On-Line Reference and another hour a day in what she thinks of as the care and feeding of Reference. (Care and feeding referred to was time spent studying the manuals and learning how to do a better job of on-line searching. The time doesn't go into any particular search but it helps to improve the quality of all searches.) This person knows also that she spends 2 hours on the reference desk. This adds up so far to 6 hours. Finally, she told us that she doesn't know whereMwhe rest of the time goes. We record only the six known hours. We know that this person works eight hours a day. We believe that we have the ratios about right here, and we're not going to institute a full audit, just to find the rest of the hours.

Person C is one who thinks in terms of percentages, and has reported that he spends 40% of his time on cataloging materials and 40% of his time on inter-library loan and 40% of his time taking care of circulation. Again we don't mind that these add up to more than

100%. What is important is that they are about equal. He could have put 1, 1, and 1 and it would have given us the same information.

Imaginary Dialogue.

We include here extracts from a manual that has been sent to client libraries and libraries participating in some of our cost studies. This is an imaginary dialogue that you might have with a member of your staff when you're filling out the data collection form for allocation of labor.

Consider a person whose initials are RCB. You don't need to put the salary down and you might not want to have all the salaries listed when you are talking to different individuals. Probably the best way to begin is by saying, "Which of these things (ILL, etc.) do you spent most of your time on?"

A typical response might be, "I spend most of my time dealing with reference."

If you have that response, point to the reference column and say, "In terms of hours per week or hours per day, or percentage-wise, how much of your time would you say you spend at that?"

Suppose the answer is, "Three hours per day."

Put a "3" on the line under "Ord Ref," and continue by saying, "What is the activity that takes up the next biggest part of your time?"

The response might be: "Well the next biggest thing is that I spend a lot of time deciding which material to order. That takes about 20% of my time."

This is the kind of information we can't deal with. We can't compare three hours with 20% so you have to say, "In terms of hours per day how many hours would you say it comes out to?"

Suppose the answer is: "About two."

Put a two on the line under "Sel." At this point RCB may say, "I guess I spend more time on reference than I thought because I think I spend about twice as much time on reference, so can we change it to four?"

The answer is: "Yes, we certainly can." Simply erase the three and put in a four. After this it gets a little more difficult because RCB has now accounted for about 75% of his time, and the rest is likely to be unclear; but you continue. You say,

"There are a number of other categories listed here. Which others are you involved in?"

A common answer would be, "Well I do a little of practically everything." Then you might say, "Which one of those other things takes the most of your time?"

The answer might be, "Inter-library loan borrowing, the business of tracking down the books we want to get, that's probably my next biggest job and I would say that takes four or five hours a week."

At this point you have to stop and say, "We can't write four or five here because everything else is in hours per day." But you can help by saying, "Well five hours a week would be about one hour a day. Is it correct to put a one in here?"

If RCB says "yes," you have accounted for what looks like seven hours out of a working day which may consist of seven and a half or eight hours. Often, at this point, there is nothing more that can be said. RCB may say "The rest of my time just seems to be split up among a lot of different things. It changes from day to day." At that point you go to the next member of the staff.

Let's say that Francis is the next employee (initials FXS) Begin as before by saying to Francis, "What activity takes up the largest part of your time during a typical working week?"

Suppose the answer is: "It has to be working in circulation. I spend more time at the circulation desk than I do at anything else."

Then you have to say, "WelSw about how much time? Is it four hours a day?"

Francis may respond, "Well you know the schedule, it varies from day to day but I would say that it takes up 60% of my time."

That means that on this row we are going to be dealing in percents, so you would put a 60 on the line under circulation. (It is not necessary to put the "%" sign.) Then you proceed as before by saying, "What is the thing you spend the next largest amount of time doing?"

Francis may say, "Well, I spend a lot of my time supervising three other people on the staff. Where would that go?"

Supervisory work belongs under general administration, unless you know that the people supervised are doing only one narrowly defined task. In that case, supervising them should be assigned to that same task. In a small or branch library usually people share functions, so the general administration column would be more appropriate. In a main university library the supervision may be specific to one service.

Now you have to get from Francis some reasonable estimate of how much of this time goes into supervisory activity. He may reason something like this: "Well, I know that I spend an hour and a half on various kinds of general paperwork and, besides that, I'm sure I have thirty minutes of interruptions every day when one of these people comes to me. So I would say about two hours a day."

Of course we can't write "2" down here because we've already begun to work in percents on this row, so you have to do a quick mental calculation and say, "That would be about 25% of your time. Does that sound right?"

Francis may say, "It's probably more than that let's call it 30%".

So you put 30% down under general administration. Then you say to Francis, "Is there anything else you do? I believe you spend some of your time revising the card catalog, don't you?"

Francis says "Yes, but not as much as I spend on administration or circulation, but iSwseems to be quite a lot. I'd say I spend about 20% of my time on the catalog work."

So you put 20 under "Catlgng." At this point Francis may say, "Wait a minute. I have 60 and 20 and 30, maybe I should change that 60 to 50.

DON'T let him do this. It can cause problems if he adjusts his estimate, just in order to make the numbers add up to exactly 100%. We are only interested in the relative size of these jobs - for example, here Circulation is twice as much as Administration and three times as much as Cataloging.

This information will be lost if you or Francis start adjusting the numbers, to make them come out to exactly 100%. What you should do, even though they now add up to 110%, is say, "Well, is there anything else that seems to represent a significant part of your work? I don't mean something that takes a half an hour every couple of weeks, but something that comes up regularly." If you are lucky Francis will say "No, that's about it. These three things constitute most of what I do."

These examples are admittedly wordy, but we hope we have gotten across to you the fact that this has to be done in a very non-threatening way. If you are a boss in your library, whenever you talk to your staff about how they spend their time, they may respond by thinking, "He is checking up on me. Do I look like I am slacking off? Am I being called on to account for how I spend my time?" Of course that's not what's happening here.

A functional cost study is not intended to target any particular employee or to make people go through some "audit procedure." It's just a necessary step in understanding how the salary part of the library budget contributes to the various services the library's patrons receive.

However, because people may have this fear, it's important to keep a relaxed attitude and to go back and forth a couple of times. It may even be necessary to go back to people four or five days after they have gone through this exercise and say, "I'm about to mail the data, but I thought I'd take a last look at these time and budget figures here and see if there is anything we left out or anything that we seem to have grossly mis-estimated."

[Inserts omitted here are images of handwritten completed forms]

The above example corresponds to the lengthy discussion given here. Of course in this study you will bring the service of interest into column (3), and you will not need to record people who do not work on it at all. So your example, for the same people, would look more like the following:

[Insert omitted here shows the same form with irrelevant items omitted.]

APLab. SCILS. Rutgers University. Study of Library Costs and Beneficial Impacts.

(White) Data Form: Allocation of Labor.

________________________ Service at ____________________.

Date: ________________ Filled out by: ____________, ____________, ____________

1. Personnel are either 100% dedicated to this service, or divide their time among several activities. We deal with this using a spreadsheet developed to facilitate cost analysis. In column "Person" enter name or initials. Do not enter "Annual Salary" unitl you have completed all the interviews with staff. Write the name of this service (shown above) in Column (3). Put names of other services on which the people to be interviewed work in columns (4)-(9). Column (1) is for Administrative and Meeting activities. Column (11) is for Professional Development. In each column enter the allocation of that persons time, using any of three methods. Method 1. Estimate the hours per day dedicated to each of the several activities. Method 2. Estimate each activity as a percentage of total time. Method 3. Estimate the hours per week dedicated to each of the several activities. DO NOT worry if the totals add up to more than 100% (or 8 hrs per day, or 40 hours per week).

(1) Name	(2)Salary Annual	(3) This Service	(4) Other	(5) Other	(6) Other	(7) Other	(8) Other	(9) Other	(10)Ad Meetgs	(11)Prof Develop mt

If you have any questions please contact Paul Kantor -Internet. kantor@zodiac.rutgers.edu Please mail completed form to Ms. Lorene Reba at APLab, c/o SCILS, 4 Huntington St.New Brunswick NJ 08901-1071. All data will be held strictly confidential. [dta-002\clr\cost\white.51. Adapted with permission from Tantalus Inc. 1994].

2. Allocation of Direct costs of equipment and other resources.
The particular service may make use of other things in the library such as centralized processing service, or a networked computer system, etc. For each such expense category cost we will compute its contribution to the cost of the specific service of interest. This is done with data that you provide on the Allocation of Direct Costs part of the White Form, shown below.

Expense Category	*Annual Cost*	*Name of Unit*	*Base Units*	*Units This Service*

Expense Category: Cataloging; Computer, Supplies, ...
Name of Unit: Book; Terminal; Ream, ...
Base Units: Total Size of the Expense Category: 100,000; 210; ....
Units This Service: The Number of Units of the Expense Category that are used by this service.
[dta-002\clr\cost\white.51. Adapted with permission from Tantalus Inc. 1994].

3 Costs and Beneficial Impacts of Library Services: Rutgers APLab Estimation of Annual Service Rendered.

______________________ at ______________________________

Date ____________________Prepared by: ____________________

1. (If known from a recent study or report)

Annual number of uses of this Service ____________________

For 12 months period from ___________ to ______________

IF (1) is not available, can you report:

2. Number of uses of this service ____________________,

during the survey or study period from __________ to

____

Additional Data (If you answered (1) you may omit this information.

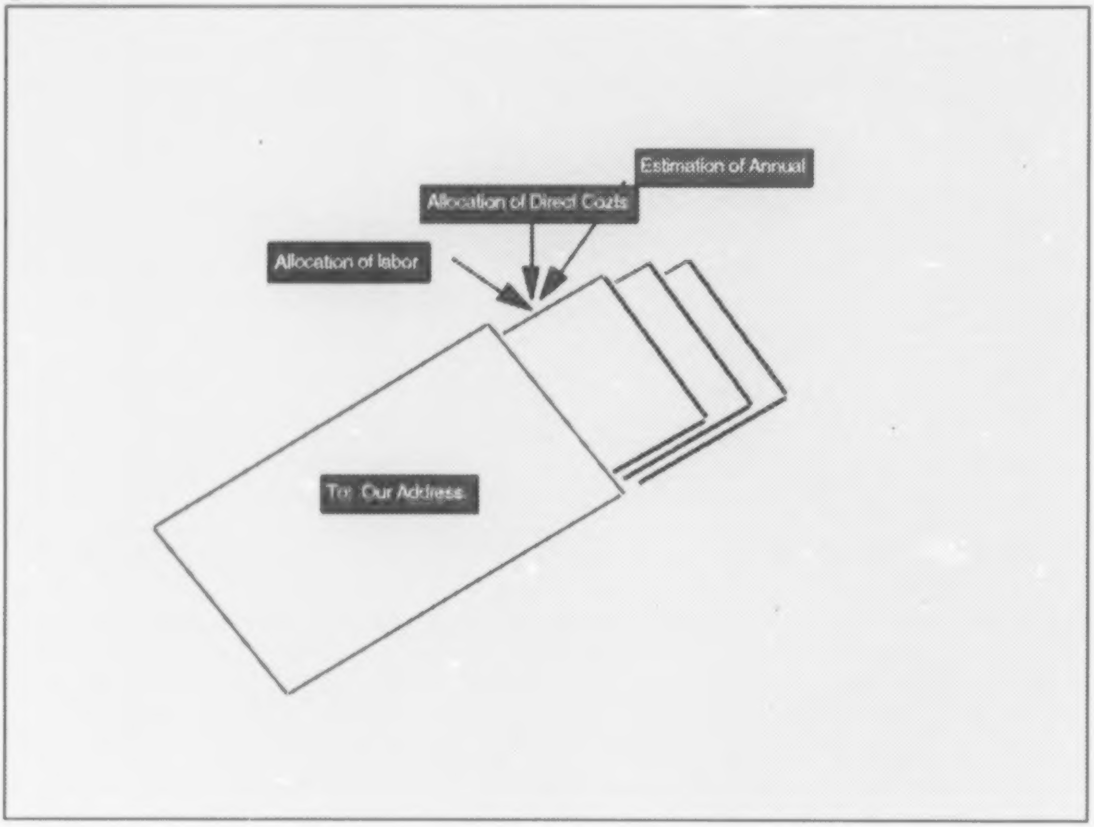
We would like any supporting information for the extrapolation from a study period to an entire year. If not other information is available, we will assume that there are 40 "typical weeks" in an academic year. If your study period included some weeks that should not be regarded as "typical" please explain in the comments.
If other services or tallies were maintained during the period cited in answering (2) above, AND you have information on the annual totals for those tallies, please note them here.

Service	Count During Survey	Annual Count

COMMENTS: Please tell us anything else that will help us to arrive at a realistic estimate of how many times the service being costed was used during the most recent year. If you have no data whatsoever, please give us your "best educated guess".

Sending it all back to us:

Please return the forms, as indicated in the drawing, to the Rutgers research team at the address shown. If you send forms for several different services in the same envelope, please be sure that they are clearly labelled and stapled into separate groups.
Thank you for your cooperation.
[Signatures]


Estimation of Annual
Allocation of Direct Costs
Allocation of labor
To: Our Address

BEST COPY AVAILABLE

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APPENDIX E

Interviewer Training Manual

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Study of Library Costs and Beneficial Impacts

INTERVIEWER TRAINING MANUAL

Alexandria Project Laboratory
School of Communication, Information
and Library Studies
Rutgers University
November, 1993

Adapted from The Eagleton Poll Interviewer's Handbook,
Eagleton Institute, Rutgers University.

Joann D'Esposito-Wachtmann

SUMMARY

When interviewing:

Do

A) Do try to make the respondent comfortable about answering the questions.
B) Do read the questionnaire exactly as it is written.
C) Do become familiar with the questionnaire.
D) Do use neutral probes on open-ended questions.
E) Do make sure your tape recorder is on during the interview - put one interview per side of the tape.
F) Do remember to record the interview numbers on the tape and label the tape with the numbers.
G) Do edit your work.
H) Do use pencil to circle the response number.

Don't

A) Don't bias the respondent's answers.
B) Don't suggest answers to respondents. We want their ideas, not yours.
C) Don't take "don't know" for an answer. Work at turning them into responses.

Appendix E

INTRODUCTION

The Alexandria Project Laboratory of the School of Communication, Information and Library Studies at Rutgers University has been awarded a grant from the Council on Library Resources to study library costs and benefits.

The purpose of Phase I of the study is to explore why faculty members and students use the university library, how they use it, how this use is beneficial or not beneficial to them and how they measure this benefit or lack of benefit.

Your role will be to gather this information via interviews with faculty and students who use particular services in one of five research libraries. Once you have collected this information, it will be analyzed by the project team with the ultimate goal of helping libraries to serve their users more effectively.

The dialogue between the interviewer and the respondent is one of the most important parts of the study. It is at this point where the actual data is gathered so the research can meet the study objectives. For this reason, it is important that the information collected be of high quality, accurate and valid. To meet these objectives, it is crucial that interviewers:

A) Develop a rapport with the respondent;
B) Transmit the questionnaire as it is written;
C) Know about the different types of questions;
D) Probe until complete answers are obtained;
E) Know how to handle a "don't' know" or "refusal" and when to terminate an interview; and
F) Edit their work.

We will discuss each of these points individually.

DEVELOPING RAPPORT

At first glance, interviewing seems like a simple task. However, communication is more complex than it often appears. Individuals bring to the respondent-interviewer relationship their own personalities and experiences. A skillful interviewer is aware of the sensitivity needed in communicating with different types of respondents. An interviewer should be able to identify these differences and be an understanding listener to the opinions of others.

The first step in the interviewing process is the development of a relationship with the respondent. The following descriptions are examples of some types of respondents and suggestions on how an interviewer may improve the interviewing relationship when these types are encountered.

Types of Respondents

The standard respondent is the type of person who makes up the largest portion of the people surveyed. This type of respondent will answer the interviewer's questions with little hesitation or explanation. The interviewer presents the questionnaire in a pleasant conversational manner and the respondent replies. Usually this type of respondent thinks of the interviewing experience as being very positive. As long as the interviewer reinforces this attitude the interview will flow smoothly.

The reluctant respondent may be hesitant about completing the interview for several reasons. He/she may be suspicious of the motives for conducting the interview, may be in a hurry, or wish to maintain his/her privacy. Most people will give an interviewer an opportunity to talk. The interviewer can use this time to convince the reluctant respondent. If the standard introduction on the questionnaire does not overcome the respondent's doubts, the interviewer may use his/her judgment and give the respondent additional information such as explaining the purpose of the study, or guaranteeing the respondent that the interview is confidential. The skillful interviewer can usually convince a reluctant respondent of the importance of the survey and can overcome any hesitations the respondent may have.

The intimidated respondent feels he/she is inadequate. He/she does not think he/she has enough knowledge to answer the interviewer's questions. This respondent perceives the questionnaire as a test and may refuse the interviewer because he/she does not want to fail. If the interviewer is sympathetic and understanding of the respondent's feelings, the respondent will react favorably. Explain that the questions are being asked to find out people's opinions. Every opinion is valuable to the survey and there are no right or wrong responses. The interviewer can relax the intimidated respondent by creating a warm, friendly atmosphere.

The verbose respondent has opinions on everything. He/she has found someone to listen and is going to make sure he/she tells you everything he/she knows. The interviewer should be courteous, yet move the respondent on through the questionnaire. Statements like "That's interesting, let's go on to some other topics" or "Now, I'd like to find out what your opinions are on some other issues" can help the interviewer proceed through the questionnaire without alienating the respondent.

Maintaining Rapport

After the interviewer has established a pleasant relationship with the respondent, this atmosphere must be maintained. Even the most cooperative respondent will not feel comfortable with an interviewer who thoughtlessly races through the questionnaire or tediously drags the respondent from question to question. There is no general rule about the pace of an interview. In each interviewing relationship, the interviewer needs to determine what pace is most effective for that respondent. In some cases the respondent may give the interviewer an obvious cue and say, "I have to leave in a few minutes". On the other hand, sometimes just the respondent's manner will be the cue. For example, a very elderly respondent who has difficulty hearing and/or understanding may not verbalize this problem to the interviewer, but a skillful interviewer will be sensitive to this need and thoughtfully slow down the pace of the interview.

A skillful interviewer will give the respondent the feeling that he/she is involved in a conversation with someone who values his opinions. The movement from question to question should be natural. If the interviewer cuts off the respondent in the middle of a response or daydreams between questions, the respondent will feel uncomfortable and the pleasant atmosphere of the interview deteriorates. Approach the interviewing process as you would a conversation with someone who is very interesting. Using your voice, make the respondent feel important.

TRANSMITTING THE QUESTIONNAIRE

Although a sound relationship with the respondent is crucial to the interview process, it is also important that the interviewer skillfully execute the questionnaire.

Verbatim Questioning

The most effective way to transmit a questionnaire is through the technique of verbatim questioning.

Verbatim questioning means:

A) Reading the questions word for word as they are written.
B) Asking the questions in the necessary order.

Let us begin with reading the questions word for word.

Questions asked in different ways elicit different responses. When the project directors go to analyze the data you collect, they will be grouping together all of the responses to a particular question and drawing conclusions from them. If the questions are not asked in a standard way, the conclusions are invalid. This is why we use verbatim questioning.

To illustrate the point, examine the following questions. Notice how the meaning can change by slightly altering the wording.

When was the last time you or someone in your household used the library?

When was the last time you used the library to obtain materials for yourself or someone in your household?

When was the last time you or someone in your household brought home something from the library?

While each of these questions may look quite similar, they are in fact quite different in meaning.

The second aspect of verbatim questioning is asking questions in the order they are written. This is because questions are ordered in a particular way for specific reasons; more general questions precede more specific ones, easier questions precede difficult ones, and occasionally, the response to one question determines whether the subsequent question is asked or skipped. (This is called a skip pattern and will be explained below).

Thus, if the interviewer varies the order in which the questions are asked, the response to one question may bias or alter the response to another question and the standardization from one interview to another is lost.

Enunciating/Familiarity with the Questionnaire

Since the questions are being read to the respondent it is essential that the interviewer enunciate each word so the respondent does not have any difficulty understanding the question. Yet, the question should sound natural and conversational. If an interviewer stumbles over words, the respondent is affected and the atmosphere of the interview is threatened. Reading the questionnaire out loud several times before using it for an interview helps reduce errors that occur when an interviewer is unfamiliar with the questions he/she is asking the respondent.

The Introduction

It is important that you go right from the introduction to the first question. Asking permission could lead to an increase in refusals. Once the respondent begins to answer questions, the interview is in progress and the possibility of refusal is decreased.

TYPES OF QUESTIONS

The questionnaire is composed of various types of questions, as outlined below:

Closed/Open Ended Questions

The questionnaire has two types of questions: open-ended and closed-ended. In a **closed-ended** question, the respondent must choose from one of the pre-designated answers. Usually, the response choices are written into the question. If you are not positive which answer the respondent is choosing, repeat all the choices. An example of a closed-ended question is:

> How often do you use service name during a regular semester--less than once a month, once a month, 2-3 times a month, 4 times a month, or more than 4 times a month?

Less than once a month	1
Once a month	2
2-3 times a month	3
4 times a month	4
More than 4 times a month	5
No response	0

Another type of closed-ended question is the rating scale in which the respondent must choose the number on the scale which most closely reflects his/her opinion, such as:

> Using a scale from 1 to 7 where 1 means not at all familiar and 7 means very familiar, how would you rate your familiarity with this library?

not at all familiar					very familiar		no response
1	2	3	4	5	6	7	0

Even though you are tape-recording the interview, responses to closed-end questions must be recorded by **CIRCLING IN PENCIL** the number which corresponds to the response given.

In **open-ended** questions, there are no preselected responses. The respondent gives whatever answer comes to his/her mind. this type of question tests the interviewers skills and requires **PROBING**, either the probes provided on the questionnaire, or one of the neutral probes discussed below.

You need not write the answers to the open-ended questions on the questionnaire. The taped responses will be analyzed later, by project staff, and converted to a numerical code which will then be written on the questionnaire.

IT IS VERY IMPORTANT that the tape recorder be turned on, that the volume is up, that you have verbally recorded the interviewer number on the tape and that you get responses to most of the open-ended questions.

Another type of open-ended question is the kind which requires the respondent to volunteer a numerical response. An example follows:

> About how much time did you spend using the reference service?
> ______________ minutes/hours no response
> 1 2 0

In this case the interviewer records the number on the blank line, then circles the number corresponding to the unit of time used by the respondent.

Skip Patterns

A skip pattern consists of a series of questions in which the respondent's answer to the initial question determines which question will be asked next. For example:

1. If the reference services were not available at this library, is there something else you could have done to get this same benefit?

   Yes. (CONTINUE TO Q.2)......1
   No. (SKIP TO Q.3)..........2
   No response. (SKIP TO Q.3)..3

2. What would you have done? (PROBE FOR SPECIFICS)

3. If 100 represents the best possible experience with the reference service that you could imagine and 0 represents the worst, what score would you give for the way it actually turned out?

In the example, if the respondent answers "yes" to Question 1, he/she is asked Question 2 and then Question 3. If, however, the respondent answers "no" or does not answer Question 1, he/she skips to Question 3.

It is very important to study the questionnaire and become familiar with the skip patterns before you begin interviewing.

Frequently, interviewers get so involved in a skip pattern they forget to record the answer to the first question. Be sure to circle the number of the response to the first question before you skip to the next one.

PROBING

There are times during the interview when the interviewer needs to probe to obtain more information or more complete information. Probes have the following functions:

1) They expand the information the respondent has given.
2) They obtain specific information on a broad subject.
3) They clarify what the respondent has said.

The idea behind probing is **TO GET AT THE MOST SPECIFIC ANSWERS POSSIBLE - TO CLARIFY WORDS UNTIL YOU CAN'T GET ANY MORE SPECIFIC**.

All probes must be **NEUTRAL** and **NON-BIASING**.

The following situations make probes necessary:

1) Respondents have difficulty putting thoughts into words.
2) Respondents answers may be unclear or incomplete.
3) Respondents feel insecure about giving a "wrong" answer.

Types of Probes

1. The neutral question
   - What do you mean by ________?
   - What else can you tell me?
   - I'm not sure I understand what you have in mind. Could you tell me more about that?
   - Is there anything else?

2. An expectant pause
   Some respondents need time to formulate an answer. Simply pausing gives them time to formulate their thoughts. However, you need a sensitivity to your respondent or a "pregnant pause" may become a "deadly silence".

3. Repeating the question
   A respondent who does not understand the question at first may realize its purpose when it is read a second time.

4. An intonation of interest
   Respondents who feel the interviewer is truly interested in their opinions will be more willing to express their thoughts. Interviewers can accomplish

this by brief comments such as "Uh-huh" or "I see" or a simple nod. ***Caution***: Any comments must be totally neutral. If you show approval or disapproval such as "Boy, do I agree with you", the respondents will attempt to give responses that obtain your approval even though they may not accurately express their true feelings.

NO RESPONSE/TERMINATIONS

When a respondent replies "I don't know" it may mean any of the following:

1) The respondent really does not know. The respondent does not feel he/she has enough information to answer the question.
2) The respondent does not understand what the question has asked.
3) The respondent feels he/she needs time to think, but also feels he/she must fill in the silence so he/she responds "I don't know".
4) The respondent feels threatened that the interview is a test and he/she may give the wrong answer.

Interviewers can often obtain answers from "don't know" respondents. A pause, a reassuring remark ("We're only interested in your ideas on this") or a neutral question ("What are your ideas about this?") can encourage a response.

If a respondent refuses to answer a particular question but is willing to answer the majority of the questions, record the "no response" option. If, however, the respondent refuses to answer most of the questions, terminate the interview, and consider it as an incomplete on the Tally Sheet.

Sometimes, because of a language problem, a hearing problem, or some other reason, it is necessary to terminate an interview (or not initiate one). As an interviewer, you must use your judgment in determining when this is appropriate. When you do, tally it as an Interviewer Termination on the Tally Sheet.

ALWAYS use pencil when writing on the questionnaire.

EDITING

When the interview is complete, the interviewer needs to check his/her work to make sure the interview has been filled out completely and accurately and that the open-ended questions were, in fact, recorded on the tape. It is important to do this **IMMEDIATELY** after the interview has ended, while it is still fresh in one's mind.

APPENDIX F

Miscellaneous Forms

F.1. Posting to recruit interviewers
F.2. Letter to invite applicant
F.3. Application form Wave 1
F.4. Application form Wave 2
F.5. Letter of appointment
F.6. Interviewing Schedule
F.7. Interviewer Tally Sheet
F.8. Telephone interview Tally Sheet
F.9. Letter at end of project
F.10. Telephone interview schedule
F.11. Call disposition form - Wave 2
F.12. Site Feasibility Report
F.13. Interviewer time sheet
F.14. Examples of contact memos or messages

[Prepare on organization letterhead]

INTERVIEWERS WANTED FOR LIBRARY USAGE STUDY

The Alexandria Project Laboratory at Rutgers University School of Communication, Information and Library Studies is seeking individuals interested in participating in a library usage study.

The study will be conducted in two phases over the 1993-1994 academic year. Training will be provided.

QUALIFICATIONS:

-Willingness to approach library users and interview them using a pre- designed questionnaire.

-Clear, spoken and written English.

-Commitment of approximately 10-15 hours per week during the interviewing period (March 28-April 30)

-Willingness to attend (paid) training sessions in New Brunswick.

-Willing to work in one of the following cities:

Manhattan
New Brunswick
Princeton
Philadelphia

Some knowledge of the language used by libraries, librarians, and library users to describe their principal operations and activities.

COMPENSATION: $10.00/hr.

Please respond as soon as possible to:
Joann D'Esposito-Wachtmann (908) 932-7705 or
E-MAIL: D@ZODIAC.RUTGERS.EDU.

The university is an equal opportunity affirmative action employer, and qualified candidates will be reviewed without regard to race, creed, color, sex, religion, age, marital status, national origin, handicapped, status as a vietnam veteran or disabled veteran, membership or non-membership in the union, or sexual preference.

[Prepare on organization letterhead]
February 1994

Dear Student,

Thank you for your interest in the interviewer position.

Please complete the enclosed application form and return to:

Joann D'Esposito-Wachtmann
Project Manager
Alexandria Project Laboratory
SCILS
Rutgers University
4 Huntington Street, Room 214
New Brunswick, NJ 08903

Thank you,

Joann D'Esposito-Wachtmann

APPLICATION

Date_______________________

Name ____
Address____
____
Phone(_____)__________________
Social security number____________________________

Are you : _____A citizen or national of the U.S.?
_____A lawful permanent resident?
(Alien # A__________________)
_____An alien authorized to work until___/___/___
(Alien # or Admission #_______________________)

Proof of citizenship or immigration status will be required upon employment.

Do you have interviewing experience? _____Yes _____No
If yes, please explain.____
____
____

EDUCATION-Begin with most recent, include high school.

School____
Address____
Dates Attended____
Degree Received(if applicable)_____________________________________
Major subject____

School____
Address____
Dates Attended____
Degree Received(if applicable)_____________________________________
Major subject____

School____
Address____
Dates Attended____
Degree Received(if applicable)_____________________________________
Major subject____

REFERENCES-Please provide the name and telephone number of two personal references (not relatives).

Name____
Telephone Number____
Relationship____

Name____

Telephone Number ______________________________
Relationship ______________________________

WORK EXPERIENCE-Begin with most recent.

Company/Institution ______________________________
Address ______________________________
____
____
Phone ______________________________
Dates employed ______________________________

Primary duties ______________________________
Supervisor ______________________________
May we call supervisor to ask for a reference? _____Yes _____No

Company/Institution ______________________________
Address ______________________________
____
____
Phone ______________________________
Dates employed ______________________________

Primary duties ______________________________
Supervisor ______________________________
May we call supervisor to ask for a reference? _____Yes _____No

Company/Institution ______________________________
Address ______________________________
____
____
Phone ______________________________
Dates employed ______________________________

Primary duties ______________________________
Supervisor ______________________________
May we call supervisor to ask for a reference? _____Yes _____No

If you are hired, you will be required to attend a paid training session in New Brunswick between March 21 and March 26, 1994. Which of the following sessions are you able to attend? (check as many as apply)

_____Thursday, March 24, 1994 7:00 p.m.- 9:00 p.m.
_____Friday, March 25, 1994 10:00 a.m.-12:00 p.m.
_____Friday, March 25, 1994 7:00 p.m.- 9:00 p.m.

Are you willing to work 10-15 hours/week during the following weeks: March 28 - April 30, 1994?

_____Yes _____No

What days and hours are you available? Your schedule will be based on the information you provide here. Please be as precise as possible.

__________Mw____

____

____

What is the maximum number of hours you are willing to work per week?

_____ hours

What is the minimum number of hours you are willing to work per week?

_____ hours

Please mark the city where you would prefer to work:

_____Manhattan
_____New Brunswick
_____Princeton

Please write (in your own handwriting) one or two paragraphs about why you are interested in this position and why you think you would be a good interviewer.

I attest that all of the information I have provided is true to the best of my knowledge.

SIGNATURE__________________________________
DATE_________________

****
FOR OFFICE USE ONLY
Interview ______yes ______no
Date________________________

Remarks____

____

Employed ______yes ______no Date of employment________________

[Prepare on organization letterhead]
October , 1993
Dear

I am happy to offer you an interviewer position on the Alexandria Project Laboratory Cost/Benefit Study. As we have discussed, your work will run from November 15 through December 15, excluding Thanksgiving week (November 21-27). In addition, you are required to attend a paid training session on November 13, 1993 from 10:00 am - 12:00 pm in New Brunswick. You will be notified of your interviewing schedule and location closer to the onset of the interviewing period. The pay rate for this position is $10.00/hour.

As an interviewer, you will be responsible for interviewing library users, either in person or on the telephone, about their use of library services and producing a specified number of neatly completed questionnaires with their accompanying tape recordings. You will report directly to me, the Project Manager.

As representatives of Rutgers University and the School of Communication, Information and Library Studies all interviewers are expected to comport themselves in a professional,courteous manner. Interviewers conducting face-to-face interviews are required to dress neatly and wear a name-tag at all times.

For those interviewers traveling to New York or Princeton, transportation costs and travel-time from your place of residence to the interviewing site will be reimbursed. All interviewers can expect to be paid three to four weeks after all the interviewing is completed.

Please find enclosed a copy of this letter for you to sign and return to me by October 22, 1993 as an acceptance of this position.

Again, I am delighted to have you join our team. I believe we have a very solid group of interviewers who will help us provide valuable information to the library field and I look forward to working with you.

Sincerely,

Joann D'Esposito-Wachtmann
Project Manager
JD/lr
cc: Paul Kantor
Tefko Saracevic

November 10, 1993

To: #3

From: Joann D'Esposito-Wachtmann

Subject: Interviewing Assignment/Schedule

Presented below is your interviewing schedule for the week of November 15-20.

IN-PERSON

Location: ********* Psychology Library
Contact: [person's name]
Date/Time: Tuesday, November 16, 1993
1:00 - 5:00 p.m.

Thursday, November 18, 1993
1:00 - 5:00 p.m.

TELEPHONE

Location: SCILS (Rutgers University), Room 214
Date/Time: Wednesday, November 17, 1993
9:00 a.m. - 12:00 noon (if necessary)

Tentatively, your schedule for the weeks of November 29 - December 3 and December 6-10 will be similar to the one above. However, I will confirm this after the first week of interviewing has been completed.

Tally Sheet

Service____________________________
Interviewer________________________
Date________________________________
Hours
Worked______________________

COMPLETE	Total
INELIGIBLE RESPONDENT	Total
INCOMPLETE	Total
INTERVIEWER TERMINATE	Total
REFUSAL	Total
	Total

USE ONE TALLY SHEET PER SERVICE PER DAY

CALL DISPOSITION FORM

Date	Name	Tel. Number	Code	Notes	#	Int. #	Service
					9		
					9		
					9		
					9		
					9		
					9		
					9		
					9		
					9		
					9		
					9		
					9		
					9		
					9		

CODES

Interview Completed	X	Interviewer Terminate	T
Incomplete/Do not call back·	I	Ineligible Respondent	E
Refusal	R	Incomplete/Recontact (Indicate Time)	C
No Answer/Busy	N	Over Quota	O
Answering Maching	A		
Non-working/Incorrect #	W		

APLAB-07:\CLR\Tables2.51

BEST COPY AVAILABLE

Date

ADDRESS

Dear

On behalf of the CLR study project directors and myself, I would like to thank you for a job well done on the library usage study last semester.

As I may have mentioned, this Spring we will be conducting Wave II of the same study. It is similar to the first wave in that we will interview library users on-site. In addition, two weeks after the in-person interview, we will telephone the respondents to determine the long-term impact of their library usage.

If you would like to participate in this portion of the study, please advise me by February 5, as I will begin interviewing candidates soon after that.

Again, thank you for your good work last semester. I look forward to hearing from you.

Sincerely,

Joann D'Esposito-Wachtmann
Project Manager

Wave II - CLR Study
TELEPHONE INTERVIEWING SCHEDULE
April 11-29, 1994

Please call 932-7705 the day before you are scheduled to find out if it is necessary for you to come in.

	Monday	Tuesday	Wednesday	Thursday	Friday
9-12 pm	Christine Melissa (backup)	Christine Andrea (backup)	Christine Andrea (backup)	Christine Melissa (backup)	Melissa Angela (backup)
1-5 pm	Angela Melissa (backup)	Angela Christine (backup)	Melissa Christine (backup)	Jennifer (1-2 pm) Angela (3-5 pm)	Angela Christine (backup)
6-9pm	Jennifer Christine (backup)	Melissa Andrea (backup)	Jennifer Melissa (backup)	Melissa Christine (backup)	

If you are unable to work during your assigned hours, you are responsible for calling your backup and asking her to fill in for you.

Appendix F

Call Disposition Form

Service ______________________________

Respondent's Name ______________________________

Respondent's Telephone Number ______________________________

Best Time to Reach ______________________________

Interview # (only for Completed Interview) ______________________________

Date	Code	Notes	Inter viewer #

Codes

Number Still Usable

No Answer/Busy	N
Answering Machine (Do not leave a message)	A
Incomplete/Recontact (Indicate time in "Notes" column)	C

Number No Longer Usable

Completed Interview	X
Refusal	R
Non-Working/Incorrect #	W
Incomplete/Do not Recontact	I
Interviewer Terminate	T
Ineligible respondent	E

IMPACT STUDY FEASIBILITY REPORT

Estimated Possible
Approaches per hour________

Site:
Function or Service:
Observation: Date ______/______/______ From _______ to _______

Sketch of the area: good interview posts; field of view

Tally of Observed Users in Ranges:

1 2 3

1	2	3

Estimated
Coverage _____% _____% _____%

Discussions with: ________________________, ________________________,
________________________, ________________________, ________________________

Notes on discussions:

Table CLRw1T01

Interviewer Time Sheet. Name ________________________________

Date	Hours Worked	TASK	Number of Hours
TOTAL			

MATERIALS DELIVERY SERVICE SURVEY
FACULTY AND GRADUATE STUDENTS

The Rutgers University School of Communications, Information and Library Studies (SCILS) is studying the impact of the Materials Delivery Service and would like to interview faculty and graduate students who have used the service. If you are willing to participate (15 to 20 minute interview) please send an e-mail message to d@zodiac or call 908-932-7705 to volunteer.

MATERIALS DELIVERY SERVICE SURVEY
Faculty and Graduate Students

The Rutgers University School of Communications, Information and Library Studies is studying the impact of the Materials Delivery Service and would like to interview you briefly. If you are willing to participate, please note your telephone number and/or email address here:

Name:____

Campus or home phone number:____________________________

Best time to reach you:________________________________

E-mail address:____________________________________

Faculty_______ Graduate Student_________

PLEASE LEAVE THIS ATTACHED TO THE REQUEST FORM IF YOU WANT TO VOLUNTEER.

The Rutgers University School of Communication, Information and Library Studies is studying the impact of the __________.______________online catalog and would like to interview you briefly by telephone. If you would like to participate, please provide the following information:

Name
Telephone number
Best time to reach you by telephone
E-mail address
And please identify yourself as one of:
Faculty, Staff, Graduate Student, Undergraduate Student, Other

When finished, hold down control, then type X.

The Rutgers University School of Communication, Information and Library Studies is studying the impact of the science document delivery service and would like to interview you briefly by telephone. If you are willing to participate, please note the following information:

Telephone Number:_______________________ _________
Best Time to Reach You By Telephone:_________________________
E-mail Address:__________________________________
Please check one:

Faculty/ Staff _______	Graduate Student _____
Undergraduate Student _____	Other_____

Thank You!

The Rutgers University School of Communication, Information and Library Studies is studying the impact of the science document delivery service and would like to interview you briefly by telephone. If you are willing to participate, please note the following information and mail this postcard.

Name:______________________________________

Telephone Number:___________________________

Best Time to Reach You:______________________

E-mail Address:_____________________________

Please check one:

Faculty/Staff _______ Graduate Student _____

Undergraduate Student _____ Other_____

Thank You!

Alexandria Project Laboratory
School of Communication, Information
and Library Studies
Rutgers University
4 Huntington Street, Room 214
New Brunswick, NJ 08903

APPENDIX G

Focus Group Moderator Guide

Moderator Guide
Cost/Benefit Study
Wave I

I. INTRODUCTION

Hello. My name is Joann D'Esposito-Wachtmann and I am the moderator today.

The purpose of today's discussion is to gather opinions about library services.

The session will take about an hour and a half.

II. GROUND RULES

1. Speak one at a time in a voice at least as loud as mine.
2. Groups are being recorded because I need to report on the findings and that is the only way I'll remember.
3. I'd like to hear from everyone but not everyone needs to answer every question.
4. Please avoid side conversations with your neighbor because it interferes with the tape but feel free to address comments to one another.
5. Asked you to come because we want your thoughts and opinions, both negative and positive. Negative comments won't hurt my feelings in any way.
6. No smoking.
7. As you know, there are no right or wrong answers in research. We're looking for different points of view so please have the courage to stick with your convictions --even if you are the only one who feels a particular way.

III. INTRODUCTION OF PARTICIPANTS

I'm Joann. I am work at the School of Communication Information and Library Studies at Rutgers and I have a professional background in market research.

Please tell us your name, department and how long you have been at the university.

IV. LIBRARY USE

How frequently do you use the campus libraries?

What services do you use the most?/How frequently.

Thinking about the last time you used the library-either by physically going there, by sending someone or by computer, what service or services did you use?

Generally, how experienced are you with that/those service(s)?

What was the purpose of your interaction?
1. the purpose of the task
2. the purpose of the information, if there was information involved

How clearly defined was the problem which led you to use the service?

Thinking about that one episode in particular, how much time did you spend using that service?

V. BENEFITS OF LIBRARY USE

What was the benefit, or the value, or the impact you got out of using this service? or What did you get out of using this service? How did that help you?

Did it... 1. answer a question?/raise a question?
2. refer you somewhere else?
3. save time?
4. save money?
5. advance research?
6. other?

If no benefit, describe how it was not beneficial.

VI. MEASUREMENT OF BENEFIT

For those who thought it was beneficial:

What would you compare the benefit to?

What dollar amount was it worth?

Was the benefit you derived from using the service worth the amount of time you spent? How did you arrive at that conclusion?

Was it convenient? What made it convenient?

How else would you measure the benefit you derived from using the service?

For those who thought it wasn't beneficial:

What would you compare it to?

Was it a waste of your time?

Was it a waste of your money?

Was it inconvenient?

Was there somewhere else you could have gone to resolve the problem or accomplish this task?

If yes, where would you have gone?

How convenient would it have been?

VII. RECAP

This is what I've heard today.

VIII. ANYTHING ELSE?

In this group, I have been trying to determine why you use library services, how you use them, if using them benefits you and how you measure this benefit. Is there anything else you think I should have asked that I didn't?

IX. IF THERE IS TIME, ASK THEM THE QUESTIONNAIRE QUESTIONS AND SEE HOW THEY RESPOND.

APPENDIX H

Questionnaire Instructions

H.1. Wave 1
H.2. Wave 2 Audition
H.3. Wave 2 Callback
H.4. Wave 2 Phone
H.5. General Telephone instructions
H.6. Site placement instructions

Rutgers Alexandria Project Cost/Benefit Study
Wave I
Questionnaire Instructions

Date	Record the date.
Interviewer #	Put your interviewer number here.
Interview #	Number the questionnaires consecutively. An incomplete will have a number, even though it is an incomplete.
Time Started	Record the time the interview began.
Coded	Please disregard this.
Library Service Version	These are already filled in. Please disregard them.
Introduction	You may use your first name only, or your first and last names. Choose what makes you feel the most comfortable.

Screening Questions
(Some of you will have a screening question before Q.A)

Q.A	The purpose of this question is to make sure we have the type of respondent we want. Our highest priority is faculty. If you have a choice between two potential respondents, approach the one you think might be a faculty member. If there are so many potential respondents that there is a possibility you will miss a faculty member because

you are with a student, wait five minutes between interviews. Or, if less than five minutes has passed and you get a "student" response to Q.A, terminate and tally as an ineligible respondent.

Q.B This question is here so that we don't interview the same person twice.

If the person does not qualify, erase the responses, tally as an ineligible respondent on the Tally Sheet and re-use the questionnaire.

If the person does qualify, this is the point where you turn on the tape recorder, record the interview number and, if necessary, ask the respondent to hold the tape recorder. **IT IS EXTREMELY IMPORTANT THAT THE RESPONDENT'S VOICE IS CLEARLY AUDIBLE ON THE TAPE!!!**

If the respondent asks why you are taping the interview, respond with:

I am able to execute the interview more quickly because I need not write down your responses to the open-ended questions.

Q.1 Use your probing skills to find out why they needed that information or document.

Q.2 Circle the appropriate number. If the respondent gives a verbal response rather than a numerical one, re-read the question.

Q.3 We want to know, in very specific terms, what their project or work is about and how it relates to their use of the service.

Q.4 We are trying to determine how that service, piece of information, or document impacted the respondent's project or work.

Q.5	Circle the appropriate number. Then, follow the skip pattern instructions.

Q's. 5a-5e are skip pattern questions. If the response to Q.5 was 1 or 2, go to Q. 5c. If the response to Q.5 was 3, 4, 5, 6, or 7, go to Q.5a. If there was no response to Q. 5, skip to Q. 6.

Q.5a	Probe for specifics.
Q.5b	Probe for specifics.
Q.5c	Probe for specifics.
Q.5d	This is a skip pattern. If the response is "yes," continue to Q.5e. If the response is "no" or "no response," go to Q.6.
Q.5e	Probe for specifics.
Q.6	Circle the appropriate number.
Q.7	Probe for specifics.
Q.8	Circle the appropriate number.
Q.9	Write the response on the blank line, then circle the number below the appropriate unit of time. If the respondent gives you a range, probe to obtain only one figure.
Q.10	Circle the appropriate number.
Q.11	Write the dollar amount. Do not write cents. If the respondent gives you a range, probe to obtain only one figure. Often, respondents are hesitant to answer this question, remind them that we only want their

opinion. If necessary, reassure them that we are not asking the question so that the library can begin charging them for services.

Q.12	Circle the appropriate number, then follow the skip pattern instructions.

Q's. 12a-15 are skip pattern questions. Only ask them if the answer to Q.12 was "yes".

Q.12a	Usually, the respondents will go right into the answer to Q.12a when they answer Q.12. If they do, it is alright to not ask Q.12a. THIS IS A MAJOR EXCEPTION.
Q.13	Circle the appropriate number.
Q.14	Write the number corresponding to the response, then circle the number below the appropriate unit of time. Do not accept ranges.
Q.15	Write in the dollar amount. Do not write cents. Do not accept ranges.
Q.16	Write one digit per line. This number should be between 0 and 100.
Q.17	Probe for specifics.
Q.18	Here we are referring to the library, not the service. Circle the appropriate number.
Q.19	Here we are referring to the service. Circle the appropriate number.
Q.20	Be sure to read the list of response options. Omit "no response."

Q.21	If you are interviewing a student, ask the first question. If you are interviewing a faculty or staff member, ask the second question. Record the response on the blank line. Disregard the section with the "INTERVIEWER DISREGARD" heading.
Q.23	Be sure to read the list of response options. Omit "no response".

TURN OFF THE TAPE RECORDER.

Gender	Record the respondent's gender.
Time ended	Record the time the interview ended.
Time began	Copy the time the interview began from page 1.
Interview length	Subtract and record the interview length.

Rutgers Alexandria Project Cost/Benefit Study
Wave II
Questionnaire Instructions
AUDITION

Date	Record the date here.
Interviewer #	Put your interviewer number here.
Interview #	The questionnaires have been prenumbered.
Time Started	Time the interview began.
Library Service Version	Already filled in. Please disregard these.
Q.3	When you are finished with the interview you will circle the response to Q.3 here.
Introduction	You may use your first name only, or your first and last names. Choose what makes you feel the most comfortable.

Screening Questions
(Some of you will have a screening question before Q.A)

Q.A	The purpose of this question is to make sure we have the type of respondent we want. Our highest priority is faculty. If you have a choice between two potential respondents, go for the one you think might be a faculty member. If there are so many potential respondents that there is a possibility that you will

	miss a faculty member because you are with a student, wait five minutes between interviews, or if less than five minutes have passed and you get a "student" response to Q.A, terminate and tally as an ineligible respondent.
Q.B	This question is here so that we don't interview the same person twice.

If the person does not qualify, erase the responses, tally as an ineligible respondent on the Tally Sheet and re-use the questionnaire.

If the person does qualify, this is the point where you turn on the tape recorder, record the interview number and ask the respondent to hold the tape recorder. **IT IS EXTREMELY IMPORTANT THAT THE RESPONDENT'S VOICE IS CLEARLY AUDIBLE ON THE TAPE!!!**

If the respondent asks why you are taping the interview, respond with:

"I am able to execute the interview more quickly because I need not write down your responses to the open-ended questions."

Q.1	Probe for specifics.
Q.2	Circle the appropriate number.
Q.3	Circle the appropriate number. Note the skip instructions for responses 3-7.
Q.3a	Only ask this question if the response to Q.3 was "1", "2" or "-1". Probe for specifics.
Q.3b	Circle the appropriate number and note the skip instructions.
Q.3c	Only ask this question if the answer to Q.3b was "yes".

Q.4	This question has been omitted on some of the questionnaires. If it is included, circle the appropriate number.
Q.5	This question has been omitted on some questionnaires. If it included be sure to probe for specifics.
Q.6	Circle the appropriate number.
Q.7	Write the number corresponding to the response, then circle the number below the appropriate unit of time. **DO NOT ACCEPT FRACTIONS OF AN HOUR (i.e. 1 1/2 hours). CONVERT IT TO MINUTES (i.e. 90 minutes).**

We will be calling back the on-site respondents with follow-up questions and, therefore, we need to know their name, telephone number and the best time to reach them. Record this information, along with the interview number, on page 4. (Page 4 will eventually be detached from the rest of the questionnaire).

TURN OFF THE TAPE RECORDER AND GO BACK TO PAGE 3.

Gender	Record the respondent's gender.
Time ended	Record the time the interview ended.
Time began	Copy the time the interview began from page 1.
Interview length	Subtract and record the length.

When we call back the respondents, we will only be calling those who gave responses 3-7 to Q.3. So that we can know who those people are at a glance, please mark the answer to Q.3 on page 1.

Finally, when we call back the respondent, we will need to know their status (student, faculty, etc.) and remind them of the specific research question about which we are calling. On page 4, record their status and write a brief Synopsis of the research question or problem based upon the answer to Q.1 so that the interviewer conducting the call-back will be able to describe it. (Please see attached examples).

Examples of Synopses

1. Respondent was tracing the legislative history of the meals on wheels program. (on March 28, 1994)

2. Respondent was researching the influence of the commedia dell'arte on contemporary theater and improvisation theory. (on March 28, 1994)

3. Respondent was doing research for a college level anthology of 17th and 18th century American writing. (on March 28, 1994)

Rutgers Alexandria Project Cost/Benefit Study
Wave II
Questionnaire Instructions
CALLBACK

Date	Record the date here.
Interviewer #	Put your interviewer number here.
Interview #	Copy the questionnaire number from the audition sheet.
Time Started	Time the interview began.
Library Service Version	Already filled in. Please disregard this.
Introduction	To describe the project, use the synopses from the audition.
Q.1a	Probe for specifics.
Q.1b	Probe for specifics.
Q.2	Circle the appropriate number. Note the skip instructions.
Q.2a	Only ask this question if the response to Q.2 was "3", "4", "5", "6", or "7". Probe for specifics.
Q.2b	Only ask this question if the response to Q.2 was "3", "4", "5", "6", or "7". Probe for specifics.
Q.3	Circle the appropriate number.
Q.4	Circle the appropriate number. Note the skip instructions.
Q.5	Circle the appropriate number. Only ask this question if the answer to Q.4 was "Has had an impact".

Q.6	Write in the dollar amount. **DO NOT WRITE CENTS. IF THE RESPONDENT GIVES YOU A RESPONSE WITH CENTS, ASK THEM FOR A WHOLE NUMBER.** Sometimes, respondents are hesitant to answer this question. Reminding them that we only want their opinion and waiting a couple of seconds usually illicits a response. Try this technique before accepting a "no response".
Q.7	The respondent could have priced it anywhere else. Circle the appropriate response.
Q.8	We are no longer referring to the specific library or service in this question. The respondent could have purchased any information services anywhere in connection with this project. Note the skip instructions.
Q.9	Only ask this question if the response to Q.8 was "yes". Read each item on the list and record a response for each item. For "some other funds" write the response in the space provided. Accept as many "yes" responses as the respondent gives you.
Q.10	Only ask these questions to faculty/staff. Read the list of services and record the response in the Q.10 column by circling the appropriate number. Do not read "libraries". (We already know they have used the library because that is where we interviewed them initially). For "some other services" write the response in the space provided.

Q.11	Only ask this question to faculty/staff. For each "yes" item, in Q.10, ask Q.11. Repeat the scale definitions when necessary. Circle the appropriate number.
Q.12	Ask students "What is your area of study?" Ask faculty "with what department are you affiliated?" All others, skip to Q.13. **RECORD THE RESPONSE ON THE LINE.** Disregard the "INTERVIEWER DISREGARD" section.
Q.13	Circle the appropriate number.
Time Ended	Record the time the interview ended.
Time Began	Record the time the interview began from page 1.
Interview Length	Subtract and record the length.

Rutgers Alexandria Project Cost/Benefit Study
Wave II
Questionnaire Instructions
PHONE

Date	Record the date here.
Interviewer #	Put your interviewer number here.
Interview #	The questionnaires have been prenumbered.
Time Started	Time the interview began.
Library Service Version	Already filled in. Please disregard these.
Introduction	You may use your first name only, or your first and last names. Choose what makes you feel the most comfortable.
Q.A	We are only interviewing faculty and graduate students.
Q.B	This question is here so that we don't interview the same person twice.

If the person does not qualify, erase the responses, tally as an ineligible respondent on the Call Disposition Form and re-use the questionnaire.

If the person does qualify, this is the point where you turn on the tape recorder and record the interview number.

If the respondent asks why you are taping the interview, respond with:

"I am able to execute the interview more quickly because I need not write down your responses to the open-ended questions."

Q.1	Probe for specifics.
Q.2	Circle the appropriate number.
Q.3a	Probe for specifics.
Q.3b	Probe for specifics.
Q.4	Circle the appropriate number. Note the skip instructions.
Q.4a	Only ask this question if the response to Q.4 was "3", "4", "5", "6" or "7".
Q.4b	Only ask this question if the response to Q.4 was "3", "4", "5", "6" or "7". Skip to the next page when finished.
Q.4c	Only ask this question if the response to Q.4 is "1", "2", or "-1". Probe for specifics.
Q.4d	Circle the appropriate response. Note the skip instructions.
Q.4e	Only ask this question if the response to Q.4e is "yes".
Q.5	This question has been omitted on some questionnaires. If it included, circle the appropriate number.
Q.5a	This question has been omitted on some questionnaires. If it is included, be sure to probe for specifics.
Q.6	Circle the appropriate number.
Q.7	Write the number corresponding to the response, then circle the number below the appropriate unit of time. **DO NOT ACCEPT FRACTIONS OF AN HOUR (i.e. 1 1/2 hours).**

	CONVERT IT TO MINUTES (i.e. 90 minutes).
Q.8	Circle the appropriate number.
Q.9	Circle the appropriate number. Note the skip instructions.
Q.10	Circle the appropriate number.
Q.11	Write in the dollar amount. **DO NOT WRITE CENTS. IF THE RESPONDENT GIVES YOU A RESPONSE WITH CENTS, ASK THEM FOR A WHOLE NUMBER.** Sometimes, respondents are hesitant to answer this question. Reminding them that we only want their opinion and waiting a couple of seconds usually illicits a response. Try this technique before accepting a "no response".
Q.12	The respondent could have priced it anywhere else. Circle the appropriate response.
Q.13	We are no longer referring to the specific library or service in this question. The respondent could have purchased any information services anywhere in connection with this project. Note the skip instructions.
Q.14	Only ask this question if the response to Q.13 was "yes". Read each item on the list and record a response for each item. For "some other funds" write the response in the space provided. Accept as many "yes" responses as apply.
Q.15	Only ask this question to faculty/staff. Read the list of services and record the response in the Q.15 column by circling the appropriate number. Do not read "libraries". (We already know they have used the library because that is where they volunteered to

	participate). For "some other service", write the response in the space provided.
Q.16	Only ask this question to faculty/staff. For each "yes" item in Q.10, ask Q.11. Repeat the scale definitions when necessary. Circle the appropriate number.
Q.17	Ask students "What is your area of study?" Ask faculty "with what department are you affiliated?" **RECORD THE RESPONSE ON THE LINE.** Disregard the "INTERVIEWER DISREGARD" section.
Q.18	Circle the appropriate number.
Gender	Record the respondent's gender.
Time ended	Record the time the interview ended.
Time began	Copy the time the interview began from page 1.
Interview length	Subtract and record the length.

Telephone Interviewing Instructions

1. Note the "Best Time to Reach" on the Disposition Form and call the respondent.

2. Record the date, the code for the outcome of the call, any relevant notes and your interviewer number on the Call Disposition Form.

3. FOR CALLBACKS: If the call resulted in a completed interview, copy the Interview Number from the Audition onto the Questionnaire and onto the Call Disposition Form.

   FOR PHONE: If the call resulted in a completed interview, write the Interview Number on the Call Disposition Form.

4. Paper clip the Call Disposition Form to the completed Interview and leave it and the corresponding tape in the box marked "complete" on the window ledge.

5. Remember to write the Interview Number on the tape case and on the tape.

6. Do Not leave messages on answering machines.

7. If you are asked "Where did you get my number?", remind the respondent that they volunteered either by filling out a form or by sending us an electronic message saying they would participate.

Telephone Interviewing Instructions

1. Write the date, respondent's name and respondent's telephone number on the Call Disposition form.

2. Make the call.

3. If the interview is completed, put the "X"code in the "Code" column on the Call Disposition form. If not, put the appropriate code.

4. If we need to recontact the person at a specific time, write the time in the "Notes" column.

5. Interview numbers will all begin with the number 9 followed by two digits beginning with 01 and continuing on consecutively. Write the interview # in the "#" column.

6. Write your interviewer number in the "Int" column on the Call Disposition form.

7. Write the service name (from p.1 - top left on the questionnaire).

8. DO NOT LEAVE MESSAGES ON ANSWERING MACHINES.

9. If you are asked: "Where did you get my number?" Respond:

   > We are working with the library director's office to study the impact of the library's services and they suggested you would be a good person to call.

   If we have an agreement form from them, please remind them that they filled out a form on which they agreed to be contacted.

Example Special Instructions

Biology Library

1. Please introduce yourself to _______________ upon your arrival. He will show you the best place to position yourself.

2. We are interviewing faculty and graduate students who have used one of the online services.

3. Your total quota is 33 interviews. Try to obtain as many as possible during each shift.

4. Please bring the completed questionnaires to SCILS Room 214 the day after your shift.

This is the end of file appsc-h.51|ps of the Rutgers APLab report on the Cost.Value.Study.